SELVAMM ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

(Nationally Re-Accredited (2nd Cycle) 'A' Grade by NAAC)

UGC Recognized 2(f) and 12(B) Institution

NAMAKKAL-637003

Degree Of Bachelor Of Business Administration (B.B.A.)

CBCS Pattern

Semester System

Regulations and Syllabus

(Effective from the Academic Year 2018-2019)

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Vision

To enhance premier business education through a suitable dynamic curriculum in the era of liberalization, privatization and globalization and to give value based management graduates to the society.

Mission

Our mission is to provide a balance of academic perspectives with practical applications and engage our students in learning experiences that enable them to become knowledgeable, motivated and resourceful to the business professionals.

Programme Outcomes

PO 1: Communicate Effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.

PO 2: **Environment Concern** - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

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Structure of BBA Programme under CBCS Pattern for Autonomous
(From 2018 and Thereafter)
Curriculum and Scheme of Examinations

Sem	Course Code	Part	Course	Hrs	Cr	Marks		
						Int	Ext	Total
I	18U1FTA01	I	Tamil-I	5	4	25	75	100
	18U1FEN01	II	English-I	5	4	25	75	100
	18U1BA01	III	Business Communication	6	4	25	75	100
	18U1BA02	III	Management Practices	6	5	25	75	100
	18U1CMA01	III	Allied-I Principles of	6	4	25	75	100
	18U1VE01	IV	Value Education-I Yoga	2	1	25	75	100
Total				**30**	**22**	**150**	**450**	**600**
II	18U2FTA02	I	Tamil-II	5	4	25	75	100
	18U2FEN02	II	English-II	5	4	25	75	100
	18U2BA03	III	Organizational Behaviour	6	5	25	75	100
	18U2BA04	III	Financial Accounting	6	4	25	75	100
	18U2STA03	III	Allied-II Business Mathematics & Statistics	6	4	25	75	100
	18U2ES01	IV	Environmental Studies	1	1	25	75	100
	18U2VE02	IV	Value Education-II Values for life	1	1	25	75	100
Total				**30**	**23**	**175**	**525**	**700**
III	18U3BA05	III	Management Accounting	6	4	25	75	100
	18U3BA06	III	Marketing Management	5	4	25	75	100
	18U3BA07	III	Legal Aspects in Business	5	4	25	75	100
	18U3BA08	III	Operations Research –I	5	4	25	75	100
	18U3ECA11	III	Allied-III Business Economics	5	4	25	75	100
	18U3BASP01	IV	SBEC-I. Inplant Training	2	2	25	75	100
	18U3BAN01	IV	NMEC-I Principles of Management	2	2	25	75	100
Total				**30**	**24**	**175**	**525**	**700**
IV	18U4BA09	III	Cost Accounting	5	4	25	75	100
	18U4BA10	III	Management Information System	5	3	25	75	100
	18U4BA11	III	Production and Materials Management	5	4	25	75	100
	18U4BA12	III	Operations Research-II	6	4	25	75	100
	18U4ECA12	III	Allied-IV Money Banking and Global Business	5	4	25	75	100
	18U4BAS02	IV	SBEC-II Corporate Employability Skills	2	2	25	75	100
	18U4BAN02	IV	NMEC-II Human Resource Management	2	2	25	75	100

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Total				**30**	**23**	**175**	**525**	**700**
V	18U5BA13	III	Human Resource Management	5	4	25	75	100
	18U5BA14	III	Financial Management	5	4	25	75	100
	18U5BA15	III	Research Methods in Management	5	4	25	75	100
	18U5BA16	III	Strategic Management	5	4	25	75	100
	18U5BA17	III	MS Office and Tally	4	3	25	75	100
	18U5BAP01	III	MS Office and Tally –Practical	3	2	40	60	100
		III	Elective-I	5	4	25	75	100
Total				**32**	**25**	**190**	**510**	**700**
VI	18U6BA18	III	Business practices	5	4	25	75	100
	18U6BA19	III	Financial Institutions and Services	5	4	25	75	100
	18U6BA20	III	Entrepreneurship Development	4	3	25	75	100
	18U6BAPR01	III	Project and Viva-Voce	3	2	40	60	100
	18U6BA21	III	Training and Development	4	3	25	75	100
		III	Elective-II	5	4	25	75	100
	18U6BEX01	V	Extension Activities (Empowering Rural People-ERP)	-	2	-	-	-
	18U6STE01	IV (I-VI SEM)	Skills(LSRW) Through English	2	1	-	-	-
Total				**28**	**23**	**165**	**435**	**600**
Grant Total				**180**	**140**	**1030**	**2970**	**4000**

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Electives-I

Sem	Part	Subject code	Subject
V	III	18U5BAE01	Services Marketing
	III	18U5BAE02	Enterprise Resource planning
	III	18U5BAE03	Investment Management
	III	18U5BAE04	Total Quality Management

Electives-II

Sem	Part	Subject code	Subject
VI	III	18U6BAE05	Retail Management
	III	18U6BAE06	E Business
	III	18U6BAE07	Insurance and Risk Management
	III	18U6BAE08	Logistics and Supply Chain Management

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Choice Based Credit System (CBCS)

Semester-I

Course Code	Part	Study Components	Courses	Hours / Week	Credits
18U1FTA01	Part-I	Languages	Tamil or anyone of the modern(Indian or Foreign) or Classical Languages-I	5	4
18U1FEN01	Part-II	Languages	English-I	5	4
18U1BA01	Part-III	Core Course-I	Business Communication	6	4
18U1BA02	Part-III	Core Course-II	Management Practices	6	5
18U1CMA01	Part-III	Allied Course-I	Principles of Accountancy	6	4
18U1VE01	Part-IV	Value Education-I	Yoga practice	2	1
Total				**30**	**22**

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Semester-II

Course Code	Part	Study Components	Courses	Hours/ Week	Credits
18U2FTA02	Part-I	Languages	Tamil or anyone of the modern(Indian or Foreign) or Classical Languages-II	5	4
18U2FEN02	Part-II	Languages	English-II	5	4
18U2BA03	Part-III	Core Course-III	Organizational Behaviour	6	5
18U2BA04		Core Course - IV	Financial Accounting	6	4
18U2STA03		Allied Course-II	Business Mathematics & Statistics	6	4
18U2ES01	Part-IV	Environmental Studies	Environmental Studies	1	1
18U2VE02	Part-V	Value Education-II	Value for life	1	1
Total				**30**	**23**

Semester-III

Course Code	Part	Study Components	Courses	Hours/ Week	Credits
18U3BA05	Part-III	Core Course-V	Management Accounting	6	4
18U3BA06	Part-III	Core Course - VI	Marketing Management	5	4
18U3BA07	Part-III	Core Course-VII	Legal aspects in Business	5	4
18U3BA08	Part-III	Core Course-VIII	Operations Research -I	5	4
18U3ECA11	Part-III	Allied Course - III	Business Economics	5	4
18U3BASP01	Part-IV	SBEC-I	Inplant Training	2	2
18U3BAN01	Part-IV	NMEC-I	Principles of Management	2	2
TOTAL				**30**	**24**

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Semester-IV

Course Code	Part	Study Components	Courses	Hours/ Week	Credits
18U4BA09	Part-III	Core Course-	Cost Accounting	6	4
18U4BA10	Part-III	Core Course X	Management Information System	5	3
18U4BA11	Part-III	Core Course-XI	Production and Materials Management	5	4
18U4BA12	Part-III	Core Course-XII	Operations Research-II	5	4
18U4ECA12	Part-III	Allied Course - IV	Money Banking and Global Business	5	4
18U4BAS02	Part-IV	SBEC-II	Corporate Employability Skills	2	2
18U4BAN02	Part-IV	NMEC-II	Human Resource Management	2	2
			TOTAL	**30**	**23**

Semester-V

Course Code	Part	Study Components	Courses			Hours/ Week	Credits
18U5BA13	Part-III	Core Course-XIII	Human Resource Management			5	4
18U5BA14	Part-III	Core Course-XIV	Financial Management			5	4
18U5BA15	Part-III	Core Course-XV	Research Methods in Management			5	4
18U5BA16	Part-III	Core Course-XVI	Strategic Management			5	4
18U5BA17	Part-III	Core Course-XVII	MS Office and Tally			4	3
18U5BAP01	Part-III	Practical-I	MS Office and Tally-Practical			3	2
		Group A	Group B	Group C	Group D		
	ELECTIVES – I	Services Marketing	Enterprise Resource Planning	Investment Management	Total Quality Management	5	4
			Total			**32**	**25**

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Semester-VI

Course Code	Part	Study Components	Courses				Hours/ Week	Credits
18U6BA18	Part-III	Core Course-XVIII	Business Practices				5	4
18U6BA19	Part-III	Core Course-XIX	Financial Institutions and Services				5	4
18U6BA20	Part-III	Core Course-XX	Entrepreneurship Development				5	3
18U6BAPR01	Part-III	Core Course	Project and Viva-Voce				3	2
18U6BA21	Part-III	Core Course-XX1	Training & Development				5	3
		Group A	Group B	Group C	Group D			
	ELECTIVES – II	Retail Management	E-Business	Insurance & Risk Management	Logistics & Supply Chain Management		5	4
18U6BEX01	Part-V	Extension Activities(Empowering Rural People-ERP)					-	2
18U6STE01	PART-IV (I-VI)SEM	Skills (LSRW) Through English					2	1
Total							**28**	**22**

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Programme Specific Outcomes (PSO):

PSO-1	Understand of the corporate world
PSO-2	Analyze the theoretical knowledge with the practical aspects of Organizational setting and techniques or management.
PSO-3	Determine conceptual and analytical abilities required for effective decision making.
PSO-4	Understand the dynamic and complex working environment of Business.
PSO-5	Understand the problems faced by the business sector in the Current scenario.
PSO-6	Understand the rapid changes of financial services include banking and insurance sectors.
PSO-7	Understand the micro and macro marketing environment.
PSO-8	Analyze the various financial and accounting concept including Balance sheet , trial balance, etc.,
PSO-9	Understand the international trade procedure and documentation.
PSO-10	Analyse the various aspect of business research in the area of marketing, human resource and finance.

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Core Course-I
Business Communication

Semester- I **Credits:4**
Course Code: 18U1BA01 **Hours/Week: 6**

Objectives:

- To help the students to know the importance of communication in day to day business.
- To develop better written and oral business communication skills among the students and enable them to know the effective media of communication.
- To enhance their writing skills in various forms of business letters and reports.

Unit –I

Communication - Meaning - Objectives – Types - Principles - Barriers of communication – Effective communication.

Unit –II

Business Letter – Meaning - Layout of Business Letters - Business Enquires and Replies - Offer - Quotations - Orders - Complaint and Adjustments - Collection letters - Circular letters.

Unit –III

Bank correspondence - Insurance correspondence - Agency correspondence.

Unit –IV

Job Application - Resume Preparation – Joining report - Resignation report.

Unit –V

Report writing – Meaning - Importance - Characteristic of good report - Report by individuals -Report by committees.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Students gained knowledge in the communication and to draft the layout for a business letter	1,6
CO-2	Learnt to prepare a report, minutes and memorandum of a meeting	2,9
CO-3	Classify the steps in drafting formal business reports.	3
CO-4	Knowledge gained on the latest technology	4,7

Text Book:

1.Rajendrapal & Koralahalli J.S, Essentials of business communication, Sultan Chand & Sons
Publications New Delhi (2014).

Reference Books:

1. Ramesh M.S & Pattan Shetty : Business communication , RC publications.(2003)
2. Balasubrahmaniyan: Business Communication, Vikas Publishing House Pvt. Ltd.

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Core Course-II

Management Practices

Semester- I **Credit:5**
Course Code: 18U1BA02 **Hours/Week : 6**

Objectives:

- To understand the fundamental concepts of management practice.
- To make the students to get acquainted with the basic Principles of Management.
- On successful completion of this course, the students will get an opportunity to examine and apply appropriate theories / concepts about managing the business effectively

Unit-I

Management Process - Principles of management - Functions of management **–** Contributions of F.W.Taylor, Henry Fayol .

Unit-II

Planning – Importance – Advantages - Principles of planning - Steps in planning - Decision making - Definition, Principles, Types of decisions - Process of decision making - Management By Objective (MBO) – Steps – Process – Merits - Limitations**.**

Unit-III

Organising – Definition - Need for organization – Process - Organizational structure - Line, Functional - Line & Staff organization - Span of management - Delegation of authority -Centralization Vs Decentralization**.**

Unit-IV

Directing – Meaning - Importance, Principles – Motivation - Theories of motivation - Maslow's need hierarchy theory - Herzberg's two factor theory. Co-ordinating – Need – Principles - Approaches to achieve effective co-ordination.

Unit-V

Controlling – Meaning - Elements and Significance - Steps in control process - Controlling techniques.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Acquired knowledge in the process and levels of managemen the organization	3,6
CO-2	Students understood types and structure of organization	2,4
CO-3	Gained knowledge on staffing the employees	1,5

Text Books:

1. L.M.Prasad : Principles of Management, Sultan Chand & Sons publications, New Delhi (2016)
2. C.B.Gupta : Business organization & Management S.Chand & Sons publications New Delhi (2017)

Reference Books:

1. Tripathi.P.C & P.N.Reddy : Principles of Management.TMH. Publications New Delhi (2012)
2. Dingar Pagare: Business Management, Sultan Chand & Sons. Publications New Delhi (2018)

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Allied Course-I

Principles of Accountancy

Semester- I **Credit : 4**

Course Code: 18U1CMA01 **Hours/week : 6**

Objectives:

- To enable the students to acquire basic knowledge of accounting principles, concepts and conventions.
- To make the students to acquire the skill to prepare the trial balance and final accounts.

Unit - I

Basic Concepts-Fundamentals of Book Keeping-Meaning-Definition-Book-keeping Vs. Accounting. Objectives- Advantages and limitations of accounting-Methods of accounting- Double entry system- Meaning-Advantages- Types of accounts- Accounting Rules-Accounting concepts and conventions.

Unit - II

Journal- Ledger- Balance of ledger -Trial balance.

Unit-III

Final accounts of a sole trading concern- Trading, Profit & Loss a/c and Balance sheet with adjustments, Difference between Trading a/c- P&L a/c and Balance sheet.

Unit - IV

Rectification of errors-Classification of errors-rectification in different stages of accounting cycle-basic principle of rectification of errors-Suspense account.

Unit – V

Final accounts of Non- trading concerns- meaning and treatment- Difference between Receipts and payments account& Income and expenditure account.(simple problems)- Receipts and payments account- Income and expenditure account and Balance Sheet.

Note: Distribution of marks - Problems 75% and Theory 25%.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students learnt the basic concept of accounting and prepara of ledger	3,4
CO-2	knowledge in the preparation of the trading and non trac organization	7,8
CO-3	Gained knowledge on calculation of profit for small traders	4

Text Books:

1. Financial Accounting - Reddy and Murthy - Margham Publications, Chennai -17. (2012)
2. Financial accounting - R.L Gupta and V.K Gupta, Sultan chand& Sons, New Delhi. (2014)

Reference Books:

1. Financial accounting - S.P Jain & K.L Narang, Kalyani publishers, Ludhiana. (2018)
2. Financial Accounting - Dr. S Ganesan and Kalavathi ,Tirumalai Publications, Nagercoil.
3. Advanced Accounting I - Dr. Chandra Bose PHI Learning (P) Ltd., Delhi. (2010)

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Core Course-III

Organisational Behaviour

Semester- II **Credit : 5**

Course Code: 18U2BA03 **Hours/Week: 6**

Objectives:

- To understand the fundamental concepts of Organisational Behaviour
- To make the students learn the applications of the concepts.

Unit – I

Meaning - Importance and Scope of Organizational Behaviour – Contributing Disciplines to Organizational Behaviour - Models of Organizational Behaviour- Human relations approach.

Unit – II

Individual Differences – Personality - Determinants of Personality - Theories of Personality. Attitude – Meaning - Formation of Attitude **–** Types of Attitudes.

Unit – III

Perception – Meaning – Process - Factors affecting Perception - Learning – Meaning –Process - Theories of Learning.

Unit – IV

Group – Meaning - Types - Group Dynamics - Cohesiveness – Conflict - Types of Conflict – Resolution of conflict.

Unit – V

Leadership - Styles - Theories – Trait, Contingency, Behavioral – Counseling and Guidance - Importance of counselor - Types of counseling-Organizational Change - Resistance to Change - Methods to Overcome Resistance to Change.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Identify the study of Human Behaviour in organization	2,6
CO-2	Describe the personality and its determinate of personality	9,3
CO-3	Identify the conflict and its type of conflict	1
CO-4	Identify the organization change and steps in managing chan	7

Text Books:

1. L.M. Prasad: Organisational Behaviour, Sultan Chand & Sons publications, New Delhi (2014)

Reference Book:

1. Keith Davis: Human Behaviour at Work, TMH publications (1985)
2. Ghos: Industrial Psychology, Sultan chand &Sons publications
3. Fred Luthans: Organisational Behaviour, McGraw Hill publications (2002)
4. Hippo: Organisational Behaviour, Sultan Chand & Sons publications

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Core Course-IV

Financial Accounting

Semester- II **Credits : 4**

Course Code: 18U3BA04 **Hours/Week : 6**

Objectives:

- To enable the students to learn how to prepare final accounts accurately.
- At the end of the course students shall understand branch accounts and departmental accounts and apply the same in the real business world.

Unit - I

Meaning of Accounting – Definition - Characteristics. Accounting equations - Rules. Transaction Analysis for journal entries - Ledger. Posting of journal to ledger (Simple problems only)

Unit - II

Single Entry System- Meaning - Features - Statement of Affairs Method and Conversion Method. (problems)

Unit-III

Branch accounts – Meaning, Definition, Dependent branches – Stock and Debtor system – Independent branches (Foreign branches excluded)

Unit - IV

Departmental Accounts— Meaning, definitions, features, basis for allocation of expenses- Inter departmental transfer at cost or selling price.

Unit-V

Depreciation - Meaning - causes-characteristics – objectives – methods - fixed-diminishing - difference between straight line method and WDV method – annuity -provision and reserves. (Problems)

Note: - Distribution of Marks: Problems 75% and Theory- 25%

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Describe the useful information to student's business activi in future	2
CO-2	Write down the point to know the financial position of business students	4
CO-3	To find out the correct cost of production in business student	5

Text Books:

1. Financial accounting - Reddy & Murthy - Margham publications, Chennai - 17.
2. Advanced Accounting - R.L.Gupta & V.K.Gupta, Sultan Chand & Sons, New Delhi.
3. Financial Accounting – M. Sumathy, G. Sasikumar, Himalaya Publishing Pvt. Ltd., Mumbai. (2014)

Reference Books:

1. Advanced Accountancy - S.P.Jain & K.L.Narang, Kalyani Publishers., New Delhi. (2014)
2. Financial accounting - Narayanaswamy, learning private limited, New Delhi. (2014)
3. Advanced Accounting - M.C. Shukla. Sultan Chand & Sons, New Delhi. (2013)
4. Advanced Accounting - S.N.Maheshwari. Vikash Publishing House Pvt Ltd., New Delhi. (2008)

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Allied Course-II

Business Mathematics and Statistics

Semester- II **Credit: 4**

Course Code: 18U2STA03 **Hours/week : 6**

Objectives:

- To impart knowledge to the students about business mathematics and statistical tools and its application

Unit-I

Matrices: Fundamental ideas about matrices and their operational rules - Matrix addition and Multiplication - Inverse of square matrices of not more than order third - Solving simultaneous equations

Unit-II

Measures of central tendency - Arithmetic, Geometric, Harmonic mean – Mean – Median – Mode - Combined mean.

Unit-III

Measures of variations - Absolute and Relative measures – Range - Mean deviation - Quartile deviation - Standard deviation.

Unit-IV

Linear simple correlation - Scatter diagram - Karl Pearson's co-efficient of correlation - Rank correlation co-efficient - Regression lines.

Unit-V

Time Series Analysis: Components of time series - Measures of trend – Free hand curve -Semi and Moving average - Methods of least squares- **Index numbers** - Definition-construction of index numbers - Weighted and Unweighted methods.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Matrix to help justify and evidence your other learning outcomes against the assessment requirements.	3,4
CO-2	Student gained the knowledge on presentation and tabulation of data, the methods of collecting data and summarizing the data using central tendency	1,5
CO-3	Students acquired the knowledge on measuring the trend or variation existing in a Time Series data.	3

Text Books:

1. Navaneetham P: BusinessMathematics and s, Jai Publications, Trichy (2016)

Reference Books:

1. Gupta S.P: business Statistical, Sultan Chand &Co New Delhi (2016)
2. Pillai R.S.N & Bagavathi .v.: Statistics, Sultan Chand & Co New Delhi (2011)
3. Dr.Vittal: Business Mathematics and Statistics, Margham Publications, Chennai (2010)

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Core Course-V

Management Accounting

Semester- III **Credit: 4**

Course Code: 18U3BA05 **Hours/Week: 6**

Objectives:

- To introduce the students to the management technique to identify well governed corporate in practical life.

Unit - I

Management Accounting – Meaning – Objectives – advantages – limitations – management accounting Vs Financial accounting – management accounting Vs cost accounting.

Unit - II

Fund flow analysis – preparation of schedule of changes in working capital and fund flow statement.

Unit – III

Cash flow analysis – preparation of cash flow statement – distinctions between cash and fund flow statement.

Unit- IV

Accounting Ratios – Meaning – types calculation of ratios – construction of balance sheet (simple problems only).

Unit-V

Budget and budgetary control – meaning – types – materials and production budget – flexible budget – cash budget – sales budget.

Note : Questions in Theory and Problems carry 30% and 70% of marks respectively.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Describe the concept of management accounting and advantage	4
CO-2	Classify the preparation of fun flow statement	7,9
CO-3	Describe the preparation of cash flow statement and its merit demerits	10
CO-4	Identity standard costing and its steps	2,4

Text Book:

1.Maheswari S.N. Principles of Management Accounting – Sultan Chand.

Reference Books

1. Man Mohan & Goyal, S.M., Principles of Management Accounting – Sathiya.

2. Reddy T.S., & Hariprasad Reddy. Y, Management Accounting, Margham Publication.

3. R.S.N. Pillai and Bagavathi, Management Accounting – Sultan Chand.

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Core Course-VI

Marketing Management

Semester- III **Credit: 4**

Course Code: 18U3BA06 **Hours/Week : 5**

Objectives:

- To give basic knowledge on the concepts of marketing.
- To make the student understand the modern method of approaching in marketing

Unit – I

Marketing – Definition – Scope – Functions – Importance – Concept of marketing – Marketing Environment.

Unit – II

Market segmentation – Bases – Pre-requisites, Consumer Behaviour – Factors – Stages in buying decision process. Targeting and positioning- Meaning.

Unit – III

Marketing Mix – Elements – Product mix – Classifications of product – New product Development – Product Life cycle.

Unit – IV

Pricing Strategies – Methods of pricing – Types of Channels of distribution – Factors – Kinds of Middle men.

Unit – V

Promotion mix – Sales Promotion – Publicity - Advertising–Personal Selling. – Selection and operation of Sales forces – Recent trends in marketing.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Understood about the marketing and its various environme factors	4
CO-2	Gained knowledge on buyer behavior and market segmentati	6
CO-3	Students learnt about various stage in Product Life Cycle	2
CO-4	Students gained knowledge on advertising and sales promoti	3,9

Text book:

1.Rajan Nair N: Marketing Management, Sultan Chand & Sons, Publishers.New Delhi,(1993)

Reference books:

1. Philip Kotler: Marketing Management, Millennium Edition, PHI, Publishers,(2003)
2. Ramasamy V.S. and Namakumary S: Handbook of Marketing Management, Macmillan.Chennai.(2006)
3. Rajagopal: Marketing Management, Vikas Publishing House Pvt., Ltd.,
4. S. Jayachandran, Marketing Management, Excel Books.
5. Rajan Saxena: Marketing Management, TMH. Publishers. New Delhi

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Core Course-VII

Legal Aspects in Business

Semester- III **Credit: 4**

Course Code: 18U3BA07 **Hours/Week : 5**

Objectives:

- To enable the students to understand the realities of business and its legal consequences.

Unit-I

Business law – Meaning, Objectives – Sources – Law of contract – Types – Essential elements of a valid contract - Discharge of contract – Remedies for breach of contract – Wagering agreement.

Unit-II

Law of sale of goods – Sales and Agreement to sale – Types of goods – Caveat emptor – Transfer of property – Sale by non owners – Unpaid seller - Auction sales - Law of agency – Creation of agency – Classification of agents – Duties and Rights of an agent – Termination of an agency.

Unit-III

Companies – Kinds of companies – Difference between private and public companies – Formation of a company – Role of a promoter.

Unit-IV

Incorporation – Memorandum of association – Its contents – Alteration – Doctrine of ultra virus – Articles of association – Contents – Certificate of incorporation – Prospectus.

Unit-V

Winding up of a company – Types of winding up – Compulsory winding up – Voluntary winding up – Consequences of winding up

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Describe the law and commercial law rules and regulation	5
CO-2	Identify the agent, and its types of agent, duties right of agent	9
CO-3	Classify the difference between condition and warranty	1
CO-4	Identify the unpaid seller and its rights of unpaid seller	3,5

Text Book:

1. N.D.Kapoor : Elements of Business Law, Sultan chand and sons New Delhi, (2005)

Reference Books:

1. S.M.Shukla R.NSaxena: Indian company law, SPT Publishers
2. S.kathiresan and Dr.V.Ratha Business law, Prasanna publications Chennai, (2006)

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Core Course-VIII

Operations Research-I

Semester- III **Credit : 4**

CourseCode: 18U3BA08

Hours/Week: 5

Objectives:

- To impart knowledge to the students about introduction to operation research and statistical tools and its application.

Unit-I

Operation research- Meaning-Scope- Uses- Models in operations research- Limitations of model –General methods for solving operations research models.

Unit-II

Liner programming problems-Requirements- Formulation of L.P.P, graphical method –Simplex method (simple problem only).

Unit-III

Transportation problems –Obtaining initial basic feasible solution –Various methods of solving transportation problems.

Unit-IV

Assignment problem- Formulation and Solution of Assignment problems.

Unit-V

PERT & CPM - Principles - Construction of Network for projects – Types of Floats – Slack - Critical path - Probability of completion of project - Advantages and Limitations.

Note:

Questions in theory and problems carry 30%and 70%of marks respectively

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Describe the law and commercial law rules and regulation	4,9
CO-2	Identify the agent, and its types of agent, duties right of agent	2,8
CO-3	Classify the difference between condition and warranty	7
CO-4	Identify the unpaid seller and its rights of unpaid seller	4

Text books:

1. Kapoor V.K: operations research techniques for management, Sultan Chand & Sons publication, New Delhi (2001).

Reference books:

1. Prem Kumar Gupta: Operations research- sultan chand & Sons publication New Delhi (2005)

2. P.K. Manmohan: Operations research- sultan chand & Sons publication New Delhi (2005)

3. Vohra N.D.: Quantitiative techniques in management Tata McGraw hill publication New Delhi (2005)

4. Vital P.R.: Business statistics, Introduction to operations research, Margham, publication Chennai,(2006)

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Department of Business Administration
BBA

Allied Course-III

Business Economics

Semester- III **Credit: 4**

Code: 18U3ECA11 **Hours/Week : 5**

Objectives:

- To understand the managerial tools of Economics and pricing decision.

Unit – I

Business Economics- Concept – Importance – Scope - Methods – Micro – Macro - Objectives of Business Firm. Demand and Supply- Law of Demand – Elasticity of Demand.

Unit – II

Market Structure- Perfect Competition – Monopoly –Monopolistic Competition -Oligopoly and Duopoly.

Unit – III

Production Function- Factors of Production – Laws Of Returns – Returns To Scale and Law of Variable Proportions – Economies Of Scale – Mixed Economy.

Unit – IV

Business Cycle-Characteristics – Phases – Control of Trade Cycle. Inflation- Definition- Characteristics – Types – Effects – Anti-Inflationary Measures. Deflation-Effects – Control

Unit – V

National Income- GDP - GNP – NNP - Per Capita Income - Balance Of Trade - Balance of
Payment.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Gained knowledge about the concepts in economics, manage economics	4
CO-2	Students understood about the demand analysis and consu behavior	7
CO-3	Acquired knowledge about the concept of Market Structure detail	9

Text Book

1. S .Sankaran, **"**Managerial Economics", Margham Publications, Chennai, 5th Edition, 2006.

Reference Books

1. Mankar.V.G., **"**Business Economics**",** Macmillan, New Delhi, 1st Edition, 2004.
2. Mithani.D.M. **"**Essential Of Managerial Economics**",** Himalayan PublishingHouse, Mumbai, 1st Edition, 2004.
3. Sundharam.K.P.M, Sundharam.E.N, **"**Business Economics**",** Sultan Chand & Sons, 4th Edition, 2005.

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BBA

SBEC -I

Inplant Training

Semester- III **Credit: 2**

Course Code: 18U4BASP01 **Hours/Week : 2**

Objectives:

- To enable the students to understand the industrial training and practices.

1. The students are expected to have a practical training in any business unit or undertaking to enable them to acquaint himself / herself with the procedure, practice and working of companies.
2. Each student should undergo industrial training for a minimum period of two weeks during the third semester vacation.
3. He / She shall undergo the above training in the institutions like banks, insurance companies, mutual funds, transport undertakings, private limited and public limited companies, public sector undertakings, hotels and hospitals, travel and tourist industries and financial institutions.
4. Students may make their own arrangements in fixing the companies for training. Candidates should submit a report in not less than 25 type written pages.
5. Candidates should submit the attendance certificate from the institution for having attended the training for 2 weeks.
6. Industrial training reports shall be prepared by the students under the supervision of the faculty of the department.
7. Industrial training report must contain the following :
    - Cover page
    - Copy of training certificate
    - Profile of the business unit

- Report about the work undertaken by them during the tenure of training.
- Observation about the concern.
- Findings

8. Industrial training certificate shall be forwarded to the university, one month before the commencement of the fourth semester university examinations.
9. Practical viva - voce examination will be conducted with internal & external examiners at the end of the 4th semester and the credits will be awarded

Course Outcomes:

CO No	**Upon completion of this course, students will be able to**	**PSOs addressed**
CO-1	Learn to appreciate work and its function in the economy	3
CO-2	Develop work habits and attitudes necessary for job success	1
CO-3	Develop communication, interpersonal and other critical skill the job interview process	3

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NMEC -I

Principles of Management

Semester- III **Credit: 2**

Course Code: 18U3BAN01 **Hours/Week: 2**

Objectives:

- To understand the fundamental concepts of management practice.

Unit – I

Management – Meaning- Scope – Levels of Management – Functions of Management.

Unit – II

Planning – Meaning – Importance – Steps in Planning.

Unit – III

Organizing – Structure of Organization.

Unit – IV

Staffing and Directing – Meaning of Staffing – Elements of Directing

Unit – V

Controlling – Meaning and Techniques of Controlling.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Co-ordinate the organizational work and eliminate unproduc effort	2
CO-2	Classify the division of work leads to efficient performanc duties	3
CO-3	Identify to ensure the decision making through follow procedures	1,5

Text Books:

1. L.M.Prasad : Principles of Management, Sultan Chand & Sons Publications, New Delhi (2000)

Reference Books:

1. Tripathi.P.C & P.N.Reddy : Principles of Management.TMH. Publications New Delhi (2005)
2. Dingar Pagare: Business Management, Sultan Chand & Sons. Publications New Delhi
3. Bhusan.Y.K: Business organization Management, Sultan chand & Sons Publications

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Core Course-IX

Cost Accounting

Semester- IV **Credit: 4**

Course Code: 18U4BA09 **Hours/Week : 6**

Objectives:

- To enable the students to understand the principles and the procedure of applied costing.
- To help the students to apply it in a practical situation.

Unit-I

Cost Accounting: Definition – Objectives – Advantages – Limitations – Financial Accounting Vs Cost Accounting – Preparation of Cost sheet.

Unit-II

Materials: Stock levels – EOQ – Methods of Stock control – Pricing of Materials – FIFO, LIFO, Base stock, Simple average and Weighted average.

Unit-III

Labour: Methods of wage payments – Incentives plans - Halsey plan and Rowan plan-

Taylor's Differential Piece Rate System-Gantt's task and bonus plan

Unit-IV

Process costing: Process costing – Process normal loss, Accounts (Excluding Equalent production, By product and Joint – Product – Inter-process profits.)

Unit-V

Managerial costing: Break Even Analysis – Significance – Uses and Limitations – Decision making problem.

Note: Question in theory and problems, carry 30% and 70% of marks respectively.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Describe the concept of cost disadvantage	4,5
CO-2	Describe the concept of cost disadvantage	3
CO-3	Classify the methods of wage payments and incentive plans	2
CO-4	Describe the application of marginal costing	7,9

Text Book:

1. Jain S.P and Narang K.L: Cost Accounting, Kalyani Publications New Delhi(2003)

Reference Book:

1. Dr. Maheswari S.N :Principles of Cost Accounting, Sultan Chand & Sons New Delhi
2. Iyengar S.P :Cost Accounting, Sultan Chand & Sons Publications New Delhi(2004)
3. ReddyT.S.and Hari Prasadh: Cost Accounting, Margham publications Chennai (2002)

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Core Course-X

Management Information System

Semester-IV **Credit: 3**

Course Code: 18U4BA10 **Hours/Week : 5**

Objectives:

- To know the students information and its uses in the management
- To apply their computer information knowledge in management

Unit - I

Management Information System – Definition – Concept - Information flow – Need and Sources – Management decisions – Importance and role.

Unit – II

Architecture of MIS – Needs for MIS – Limitations – Management process and Information system – MIS and BPR - Evaluation and Maintenance of MIS.

Unit – III

System classification – Concept characteristics – Elements – Feedback control – Boundary – Function and Operations – System design – Function of system analyst - Assignment and Investigation – Implementation.

Unit- IV

Transactions Processing Information Systems – Information systems for managers – Intelligence system – Decision Support System – Integration – Data collection and Preparation – Database – Components – Utility of the operation of the data base technology.

Unit-V

Functional Management information systems – Production, Marketing, Accounting, Personnel, Financial, Relationship – Impact and their role in the managerial decision making.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Gained knowledge on MIS and its support for plann organizing and support for controlling	2,3
CO-2	Students learnt about different concept of system	5
CO-3	Gained knowledge on various element of computer and accessories	8
CO-4	Acquired knowledge on different support systems	1

Text book:

1. CSV Murthy: Management Information System, HPH. Publications.
2. Davis & Olson: Management Information System, MGH.Publications.

Reference books:

1. R. Senapathi MIS Lakshmi Publications.
2. Lucas: The analysis, design and implementation of information system, MGH. Publications.
3. G.M. Scott: Principles of management information system, MGH. Publications.
4. Dr. S.P. Rajagopalan: Management information system, Margham Publications.
5. S. Sadagopan: Management Information System, PHI Publications.

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Core Course – XI

Production and Materials Management

Semester- IV **Credit: 4**

Course Code: 18U4BA11 **Hours/Week: 5**

Objectives:

- To introduce basic concepts and to impart knowledge on production and Materials management.

Unit- I

Production- Meaning-Types of Production-Production System-Continuous Production System-Intermittent Production System**.** Production Management - Definitions – Importance- Functions, Scope - Plant Location -Factors Affecting Plant Location.

Unit- II

Plant Layout - Principles –Types-Quality Control-Meaning-Objectives-Importance. Maintenance Management-Advantages-Types.

Unit-III

MaterialsManagement-Meaning-Objective-Purchasing-Procedure-Purchase Parameters –Vendor rating-Meaning.

Unit- IV

Store keeping - Objectives - Functions – Store Keeper - Duties - Responsibilities - Location of Store - Stores Ledger – Bin card-Materials Handling - Importance - Criteria for Selection of Material Handling Equipments.

Unit- V

Inventory control - Meaning and Importance - Tools of Inventory Control -ABC, VED, and FSN Analysis

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students understood the concept of production management	2,4
CO-2	Gained knowledge on the importance of materials manageme	4
CO-3	Students understood the concept of inventory con techniques	2,8
CO-4	Knowledge acquired on Stock keeping and materials handling	1,3

Text Books:

1. Saravanavel. P & Sumathi .S: Production & Material management, Margham Publications, Chennai (2011).

Reference books:

1. Varma.M.M: Materials Management, Sultan Chand & Sons Publications, New Delhi 2011
2. Dutta : Integrated Materials Management, PHI
3. O.P. Kanna : Industrial Engineering & Management, Dhanpatrai Publication

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BBA

Core Course-XII

Operations Research-II

Semester- IV **Credit: 4**

Course Code: 18U4BA12 **Hours/week : 5**

Objectives:

- To impart knowledge to the students about introduction to operation research and statistical tools and its application

Unit-I

Game Theory-Basic Terminologies-Two person Zero Sum Game-Games with Saddle points (Minimax and Maximum Principle) Simple Problems**.**

Unit-II

Queuing System- Elements-Characteristics-Applications of Various Models (Only Theory)-Single Server Systems M/M/I: FIFO Simple Problems.

Unit-III

Scheduling – Meaning – Types of Scheduling.

Unit-IV

Replacement Problems-Replacement of items that deteriorates with time (without change in money value)-Replacement of items that deteriorates with time (Money value changes)

Unit-V

Inventory Models- manufacturing models with and without shortages – purchasing models with and without shortages.

Note:

Questions in theory and problems carry 30% and 70% of marks respectively

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students understood the concept of production management	3,4
CO-2	Gained knowledge on the importance of materials manageme	7
CO-3	Students understood the concept of inventory con techniques	3
CO-4	Knowledge acquired on Stock keeping and materials handling	6,9

Text Books:

1. Kapoor V.K: Operations research, sultan Sons publications New Delhi(2001)

Reference Books:

1. Prem Kumar gupta: Operations research- sultan chand & Sons publication New Delhi (2005)
2. P.k. Man Mohan: Operations research- sultan chand & Sons publication New Delhi (2005)
3. Vohra N.D.: Quantitative techniques in management Tata McGraw hill publication New Delhi (2005)

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Allied Course-IV

Money Banking and Global Business

Semester- IV **Credit: 4**

Course Code: 18U4ECA12 **Hours/Week : 5**

Objectives:

- To impart basic knowledge and skills on money baking and global business policy.

Unit-1

Banking: Evolution- Meaning and Definition of banking- Classification of banks-Units and Branch Banking-Functions of Commercials Banks-Role of Commercials Banks in Economic Development- Functions of Central bank(with reference to RBI)-Credit creation and Credit control.

Unit-II

Recent trends in Indian banking: Types of Financing – Repayment methods – Bank Net- Automated Teller Machines-(ATM) - Phone Banking- Credit cards

Unit-III

Inflation, deflation: Inflation- Types of inflation- Cost push and Demand pull Inflation-Control of Inflation –Deflation- Stagflation- Control of Deflation- Phases of Trade Cycle.

Unit-IV

Money market: Money Market - Capital Market –Functions of Capital Market-Difference between Money and Capital market-Monetary policy

Unit-V

Exchange: Determination of exchange rate –Devaluation of money- Exchange control-Flow of foreign capital

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students gained knowledge of capital market in india.	2,6
CO-2	To know the present scenario of Indian banking industry	7
CO-3	Describe the present position of Indian economic conditions	9

Text Books:

1. R.Parameswaran & S.Natarajan: Indian banking,TMH Publications

Reference books:

1. Mithance D.M:Money banking international trade,TMH
2. Ashok desai : Indian banking, Sultan Chand & Sons Publications
3. Sayers R.S :Modern Banking, Margham Publications

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NMEC - II

Human Resource Management

Semester- IV **Credit: 2**

Course Code: 18U4BAN02 **Hours/Week : 2**

Objectives:

- To introduce the students the basic concepts of HRM and to impart knowledge in Human Resource Planning and Development.

Unit – I

Introduction – Meaning and Definition, Nature, Scope, Objectives, Importance, and Functions of HRM.

Unit – II

Human Resource Planning – Nature, Importance and Objectives of Manpower Planning – Process of Manpower Planning – Uses and Benefit of Manpower Planning.

Unit – III

Recruitment and Selection – Sources of Recruitment Selection of Employee – Difference between recruitment and Selection.

Unit – IV

Procedures for selection-Tests-Interviews-Types of Interview-Process of conducting Interview-checking of References-Final Selection.

Unit – V

Training and Development – Importance of training employee – Types of training – Methods of training

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students learnt about remuneration and welfare measures	3
CO-2	Gained facts about labour relation and Industrial disputes	5
CO-3	Students learnt about human resource audit, nature approaches	7

Text book:

1. J. Jayasankar: Human Resource Management, Margham Publications Chennai 2011.

Reference books:

1. G.R. Bassotia: Human Resources Management, Mangal Deep Publications.
2. K.Aswathappa:Human Resources and Personnel Management,TMH Publications
   New Delhi (2011)
3. Kaushal Kumar:uman Resources Management – ABD Publishers.
4. Keith Davis:Human Relations at work, TMH. Publishers.
5. C.B. Mamoria,: Personnel Management, Himalaya publications house

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Core Course-XIII

Human Resource Management

Semester- V **Credit: 4**

Course Code: 18U5BA13 **Hours/Week:5**

Objectives:

- To introduce the students the basic concepts of HRM and to impart knowledge in Human Resource Planning and Development.

Unit – I

Human resource management – Definition – Objectives – Scope – Functions of HRM. Job analysis – Process of Job Analysis.

Unit – II

Human Resource Planning –Objectives of HR Planning – Process of Human Resource Planning – Recruitment – Sources of Recruitment . Selection procedure – Test and Interview – Types – Reference check – Final selection – Placement – Induction (orientation)

Unit – III

HRD – Need – Functions – Training – Methods – Executive Development – Differences between Training and Development . Career Planning – Process – Succession Planning – Concept of Quality of Work Life (QWL)

Unit – IV

Performance Appraisal – Process – Techniques– Differences between Performance Appraisal and Job evaluation. Job Evaluation – Process – Methods.

Unit – V

Promotion – Criteria – Benefits of Effective Promotion Policy , Transfer – Purpose of Transfer. Absenteeism – Causes – Measures – Labour turnover – Separation – VRS- Retirement – Dismissal

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Acquired knowledge on HRM, its environment, methods of selection, and Interview techniques	1,2
CO-2	Students learnt about remuneration and welfare measures	2
CO-3	Gained facts about labour relation and Industrial disputes	4
CO-4	Students learnt about human resource audit, nature approaches	6,7

Text book:

1. S.S.Khanka , Human Resources Management, Sultan Chand & Sons, New Delhi.

Reference books:

1. C.B. Mamoria,: Personnel Management, Himalaya publications house
2. J.Jayasankar , Human Resources Management, Margham publications, Chennai.
3. Kaushal Kumar:uman Resources Management – ABD Publishers.
4. K.Aswathappa:Human Resources and Personnel Management,TMH Publications
   New Delhi (2011)
5. Keith Davis:Human Relations at work, TMH. Publishers
6. G.R. Bassotia: Human Resources Management, Mangal Deep Publications.

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Core Course -XIV

Financial Management

Semester- V **Credit : 4**

Course Code: 18U5BA14 **Hours/Week : 5**

Objectives:

- To enable the students to learn fundamental aspects of financial management

Unit - I

Financial Management – Meaning – Definition – Objectives – Importance – Functions – Organization – Structure of Financial Management – Role of a Financial Manager.

Unit - II

Capital Budgeting – Ranking of Projects – Methods of Evaluating a Project Investment Proposal – Importance of Capital Budgeting (simple problems only).

Unit – III

Capital Structure Theories – Net Income Approach – Net Operating Income Approach – Modiglini Miller Approach – Factors Determining Capital Structure (theory only). Leverage – Meaning, Types – Importance and Significance of Leverages (Simple Problems only).

Unit- IV

Cost of Capital – Concept Cost of Capital – Determinants of Cost of Capital – Simple and Weighted average Cost of Capital (simple problems only).

Unit-V

Working Capital Management – Meaning – Importance – Types – Factors Determining Working Capital, Estimation of Working Capital (simple problems only).

Management of Cash, Inventory, Accounts Receivables and Accounts Payable (theory only).

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Gained knowledge on various source of finance	6,9
CO-2	Students understood the concept of cost of capital	2,5,6
CO-3	Gained knowledge on various dividend policies	9
CO-4	Acquired knowledge on working capital requirement & operating cycle	7,6

Text Book:

1. Dr. A.Murthy, Financial Management, Margham publication – Chennai(2016).

Reference Books

1. I.M. Pandey, Financial Management – Vikas.
2. Dr. S.N.Maheshwari , principles of Financial Management, Himalaya publishing House.

Note :

Theory - **50%** of Marks, Problem - **50%** of Marks

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Core Course-XV

Research Methods In Management

Semester- V **Credit: 4**

Course Code: 18U5BA15 **Hours/Week : 5**

Objectives:

- To introduce basic concepts and ideas to import knowledge on marketing research

Unit - I

Research- Meaning-Objective-Types- Significance of Research Process.

Unit - II

Sampling – Meaning – Sampling Design-Types- Probability- Non Probability - Sampling-Sampling Errors.

Unit – III

Data collection – Types of Data - Primary - Secondary – Data Collection Tools – Questionnaire – Schedule – Collection of Secondary Data. Scaling – Scale Classification.

Unit- IV

Data Preparation Process – Questionnaire Checking Editing – Coding – Classification – Tabulation. Hypothesis – Meaning – Null Hypothesis – Alternate Hypothesis.

Unit- V

Report writing – Significance – Steps – Layout – Types of Report – Mechanics of Writing a Research Report – Precautions.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Acquired knowledge in the need of Research, sampling, p testing	4
CO-2	Gained knowledge on various types of research and sampling techniques	4,6
CO-3	Acquired knowledge on the application of various statist tools	7
CO-4	Gained knowledge on the preparation of reports	2,3

Text book:

1. Sharma D.D: Marketing Research, Sultan Chand & Sons, Delhi, (2005)

Reference books:

1.C.R.Kothari: Marketing Research Methods & Techniques S. Chand & Sons Publishers.(2006).

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Core Course-XVI

Strategic Management

Semester- V **Credit: 4**

CourseCode: 18U5BA16 **Hours/Week : 5**

Objectives:

- To familiarize the students with the basics of Strategic Management.
- To enable the students become socially conscious managers

Unit – I

An Overview of Strategic Management - Policy-Strategy – Tactics - Level of Strategy- Strategic Decision Making - Strategic Management - Process of Strategic Management- Strategists and their role in Strategic Management.

Unit – II

Strategy Formulation – Strategic Intent-Vision – Mission – Organizational Analysis -Organizational Capability Profile(OCP) – Strategic Advantage Profile(SAP)..

Unit – III

Strategy Alternatives: Corporate Level Strategies – Grand Strategies – Stability-Expansion – Retrenchment – Combination – Business Level Strategies – Porter's Generic Business Strategies.

Unit- IV

Strategy Analysis and Choice – Corporate Level Strategic Analysis – Boston Consulting Group(BCG)Matrix - General Electric (GE) Nine cell Matrix – SWOT Analysis – Business Level Strategic Analysis – Michael Porter's Five Force Model- SPACE.

Unit- V

Strategy Implementation and Evaluation - Project and Procedural Implementation -Resource Allocation - Structural- Behavioural - Functional and Operational Implementation-Strategic Evaluation and Control.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students learnt on political and legal issues in business	4
CO-2	Students have acquired knowledge on micro & macro econo concepts	7,9
CO-3	They gained knowledge on social beliefs, customs and cult heritage	1,3

Text book:

1. Azhar Kazmi:Business Policy and Strategic management – TataMcgrawHill
   New Delhi Publications (2007)

Reference books:

1. P. Subba Rao:Business Policy & Strategic Management.TMH
2. Francis Cherunilam:Business & Strategic Management (Text and Cases) – Himalaya.
3. Dr. S. Sankaran:Policy and Strategic management, Himalaya.
4. Fred R.David – Strategic Management Pearson Education

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Core Course – XVII

Ms Office and Tally- Theory

Semester- V **Credit: 3**

Course Code: 18U5BA17 **Hours/Week : 4**

Objectives:

- To know the students computer and its uses in the management
- To apply their computer knowledge in management

Unit-I

Word Basics: Using Auto Text – Using Auto Correct Word Editing Technique Finding and Replacing Text – Checking Spelling – Using Templates- Formatting – Formatting with Styles Creating Tables.

Unit-II

Excel Basics: Entering data- Selecting Ranges- Editing entries – Formatting entries- Simple Calculation- Naming cells and Ranges- Data display- Printing worksheets –Copying entries between workbooks – Moving sheets between workbook-Deleting sheets- Creating graphs.

Unit-III

Power Point basics: Working in outline view- Using a design template- Merging presentations in Slider sorter view applying templates – Adding graphs- Adding organization Charts.

Unit-IV

Access Basics: Creating a table- Entering and Adding records- Changing a structure- Working with records – Creating forms – Establish able relationship using queries to extract information

Unit-V

Tally: Introduction to Tally-Company Creation-Alter-Display-Accounts info-Ledger creation-Voucher creation-Bank Reconciliation Statement-Bill wise

Details-Cost centre and cost category-Multi Currency-Interest calculation-Budgets and Credit Limits-Day Book.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students understood the concept of production management	5,7
CO-2	Gained knowledge on the importance of materials manageme	8
CO-3	Students understood the concept of inventory con techniques	3
CO-4	Knowledge acquired on Stock keeping and materials handling	5,9

Text Books:

1. Office 2000 Complete Reference by stepher L.Nelson.
2. PC Software for window made simplex by R.K Taxali – Tata McGraw Hill Publishers Pvt. Ltd
3. Tally 9.0-A complete Reference-Tally Solutions (P) Limited.2010

Reference Book:

1. Quick Course in Micro soft Office Joyce Cox, Polly urban – Galgottia Publications.
2. PC Software for Office- Automation by T.Karthikeyan and Dr. C. Muthu Sultan Chand and Company.

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Ms Office and Tally - Practical

Semester- V **Credit : 2**

Course Code: 18U5BAP01 **Hours/Week: 3**

Objectives:

- To equip the students with practical skills to use Ms Office Package and Tally.

List of Practical's

MS-Word:

1. Type the text, check spelling and grammar bullets and numbering list items, align the text to left, right justify and centre.
2. Prepare a job application letter enclosing your Bio-Data
3. Perform Mail Merger Operation and Preparing labels.
4. Prepare the document in newspaper column layout.

MS – Excel:

1. Worksheet Using Formulas.
2. Working Manipulation for electricity bill preparation.
3. Drawing graphs to illustrate class performance
4. An excel worksheet contains monthly sales details of five companies.

MS Power Point:

1. Prepare a PowerPoint presentation with at least three slides for department Inaugural function.
2. Draw an organization chart with minimum three hierarchical levels.
3. Design an advertisement campaign with minimum three slides.
4. Insert an excel chart into a power point slide.

Tally:

1. Company creation
2. Select company
3. Shut company
4. Alter company
5. Split company Data
6. Backup and Restore
7. Trial balance
8. Day Book
9. Accounts Book
10. Statement of Book
11. Inventory Books

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Electives-I

(Group – A)

Services Marketing

Semester- V **Credit: 4**

Course Code: 18U5BAE01 **Hours/Week : 5**

Objectives:

- To enable the students to understand the concepts of service marketing.
- To help the students to know the operation of service marketing

Unit-I

Importance of Services Sector – Nature and Types of Services-Difference Between Services and Goods Marketing-Services Marketing triangle.

Unit-II

Environment for Services Marketing - Micro and Macro Environments-Understanding Service customers- Models of Service Consumer Behaviour - Customer Expectations and Perception – Services Quality and Gap Model.

Unit-III

Market Segmentation and Selection –Service Market Segmentation - Targeting and Positioning.

Unit-IV

Services Marketing mix – Need for expanded marketing mix – Planning for Services offer – Pricing – Promotion and distribution of services – Management of People – Matching Demand for and supply of services.

Unit-V

Services marketing applications – Marketing of Financial, Tourism and Educational services .

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students have gained knowledge on service sector and t services	3,5
CO-2	Students have acquired knowledge on marketing mix	7
CO-3	Students have gained knowledge on marketing of services	3,9

Text Books:

1. Rao:Services Marketing, Pearson Education, Publication. India
2. David Gilbert;Retail Marketing Management, Pearson Education-Publications. India

Reference Books:

1.Helen Woodruffe. : Service MarketingMacmillan. Publications.

2.HarshVerma: Service Marketing Global Business Press Publications..

3.Ravishankar:"Service Marketing- The Indian Experience, Manas. Publications.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Electives-I

(Group – B)

Enterprise Resource Planning

Semester- V **Credit: 4**

Course Code: 18U5BAE02 **Hours/Week: 5**

Objectives:

- To Improve Service Experience
- To Enhance Competitiveness
- To Modernize Business Processes and System

Unit-I

Enterprise Resource planning -Meaning -Principles Importance -Benefits -ERP and Functional Area Model: Dynamic and Process

Unit-II

ERP -A Manufacturing perspective -review an understanding of the basic business process -Business Process Reengineering -Production and Operation Procurement - Inventory control - Stores control –BP

Unit-III

ERP System Packages -SAP, People Soft, BAAN an Oracle -ERP Applications

Unit-IV

Oracle -Overview -Architecture, Applications, SAP Overview, Architecture, Application

Unit-V

Implementation of ERP -Key factor Analysis Organizational & Social issues

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students understand the models of ERP & its uses organisation	1
CO-2	Gained knowledge on ERP system packages in business	2,7
CO-3	The know the SAP architecture and its applications	4

Text Books

1. Alexis Leon, ERP Demystified -Tata McGraw - Hill publishing Company Limited - NewDelhi.2000
2. Brady, ERP, Thomas Learning 2001 .

Reference Books

1. Sadagopen.s, ERP -A Managerial Executive", Tata MCGraw Hill 2001
2. Vinod Kumar, Grag and N.K .Venkitakrishnan ERP, Prentice Hall of India, New Delhi 2001
3. Vinodkumar Grog, and Bharat Vakharia, ERP Strategy, Jaico Publising House, Mumbai1999

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Electives-I

(Group – C)

Investment Management

Semester- V **Credit: 4**

Course Code: 18U5BAE03 **Hours/Week: 5**

Objectives:

- To know the structure and functioning of investment management and financial service industry in India.

Unit – I

Meaning of investment – Nature and Scope of Investment management - Factors favorable for investments – Features of an investment programme

Unit – II

Investment avenues- Real assests - Financial assests-Fixed income and Variable Income Securities.

Unit – III

Risk – Return Concept – Return Measurement- Bsasic valuation Models – Equity Valuation, Preference Share and Bond Valuation.Risk- Risk Classification – Syatematic and Unsystematic risk – Measurement of Risk

Unit – IV

New Issue market and Stock Exchange - Kinds of Trading – Securities and Exchange Board of India

Unit – V

Sources of Investment Informations –Credit Rating Agencies- CARE- CRISIL-ICRA-Credit Rating Methodology- Indicies.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	know the security exchange board of India (SEBI)	4
CO-2	Gained knowledge on National Stock exchange (NSE) and difference between Bombay Stock exchange (BSE)	5,8
CO-3	Know the investors investing the securities of shares, bond & debentures	3

Text book:

1.Preeti singh: Investment management, Himalaya publishing house,Chennai(2009)

2. V.K.Bhalla: Investment management, TMH.

Reference books:

1.Donald E. Fischer and Ronald J.Jordon:Security Analysis and PortfolioManagement Practice Hall 1990.

2. Frank K. Reilly: Investment Analysis and Portfolio Management Dryden Press.

3. N.J. Yasamy: Equity investment strategy; Tata McGraw Hill Book Company,

4. V.K. Bhalla: Investment Management, Security Analysis and Portfolio Management S.Chand and Company Limited, New Delhi (2000)

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Electives-I

(Group – D)

Total Quality Management

Semester- V **Credit: 4**

Course Code: 18U5BAE04 **Hours/Week : 5**

Objectives:

- To enable the students to understand the Total Quality Management concept and principles.

Unit - I

Concept of Quality – Quality as customer delight – Quality as meeting standards – Introduction to Total Quality – Concept of Total Quality – Design, Inputs, Process and Output – Quality as business performance – Attitude and Involvement of top management.

Unit – II

Quality Management – Fundamentals – Evolution and Objectives – Planning for Quality – Quality Process – Statistical Process Control (SPC) – Quality Assurance – Total Quality Management.

Unit – III

Quality Management System – ISO 9000 series – Techniques of TQM – 5 S Concepts – 7Q tools – Cause – Effect Analysis stratification, Pareto Diagram, Histogram - Control Charts - SQC - Check sheet - Pie Chart - Scatter Diagram (Theory Only).

Unit- IV

Bench marking – Essence of Bench Marking – Benefits and Strategic Bench Marking – Global Bench Marking – Business Process Re-engineering.

Unit - V

Core competence and Strategic alliance for ensuring quality – Role of MNC's in emergence of global quality – Barriers to TQM.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students know the concept of quality in each & every aspect business	5,8
CO-2	Know the techniques of quality management	6
CO-3	Understand the concept of quality management system	3,9

Text book:

1. Armond V. Feigerbaum:Total Quality Control, McGraw Hill.
2. John Bark:ssence of TQM, PHI, Delhi.

Reference books:

1. Ron Collard:Total Quality, Jaico, Delhi
2. Willborn & T.C. Edwin Cheng: Global Management of Quality Assurance systems, McGraw Hill.
3. J.M.Juran:juran On leadership for Quality – An Executive Hand Book.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Core Course-XVIII

Business Practices

Semester- VI **Credit: 4**

Course Code: 18U6BAE18 **Hours/Week: 5**

List of Exercises

Objective:

- To give Practical Knowledge about the various field of commerce.

Unit – I Business

1. Preparation of Invoice, Receipts, Voucher, Delivery Challan, Entry Pass, Gate Pass - Debit and Credit Notes.
2. Preparation of Transaction from the Receipts, Vouchers - Credit Notes and Debit Notes.
3. Preparation of Application for Shares and Allotment - Letter for Share – Transfer Forms.

Unit – II Banking

4.Drawing, Endorsing and Crossing of Cheques - Filling up of Pay in Slips – Demand Draft Application and Preparation of Demand Drafts.

5.Making Entries in the Pass Book and Filling up of Account Opening Forms for SB Account, Current Account and FDR's.

6.Drawing and Endorsing of Bills of Exchange and Promissory Notes.

National Electronic Funds Transfer (*NEFT*) - *Real Time Gross Settlement* Systems (*RTGS*) - Immediate Payment Service (*IMPS*)

Unit – III Co – Operative Societies

7.Filling up of Application Forms for Admission to Cooperative Societies. Filling up Loan Application Forms and Deposit Challan.

8.Filling up Jewel Loan Application Form, Procedure for Releasing of Jewellery in Jewel Loans and Repayment.

Unit – IV Secretarial practice and Stores control

9.Preparation of Agenda and Minutes of Meetings-both General Body and Board of Directors.

10.Using Bin Card and Inventories.

11.Using Cost Sheets.

Unit – V Insurance, Advertising and Income Tax

12.Filling up of an Application Form for LIC Policy, Filling up of the Premium Form - Sending Premium Notice and Filling up the Chelan for Remittance Receipt for the Premium. Procedure for Lapsed Policy and Procedure for Settling Account while the Insured is Alive or Dead.

13. Preparation of Audit Programmes.

14. Preparation of Audit Report and Replies to Audit Objections.

15. Preparation of an Advertisement Copy, Collection of Advertisement in Dailies and Journal, Critically Evaluating the Advertisement Copy.

16. Filing up e- Returns and Application for Permanent Account Number.

Note:

Students may be requested to collect original or Xerox copies of the documents and affix then on the record note book after having filled up. Drawing of the documents should not be insisted.

Distribution of marks: Practical 75% and Record Note Book 25%

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students know the preparation of receipts, bills, etc…	2,4
CO-2	Know the registrations of societies in india	6
CO-3	Students will be able to fill income tax forms	9

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Core Course-XIX

Financial Institutions and Services

Semester- VI **Credit:4**

Course Code: 18U6BA19 **Hours/Week : 5**

Objectives:

- To know the basics concepts of financial service sectors.
- To understand the application of financial institution concept.

Unit - I

Indian Financial system – Financial system and Economic development – Banks as financial intermediaries – Reserve Bank of India, Commercial Banks, and Co-operative Banks – Functions.

Unit - II

Non – Banking financial intermediaries – Unit Trust of India – Mutual Funds – Hire Purchase Finance Companies – Lease Finance Companies – National Housing Bank – Housing Development Finance Corporation – Housing Urban Development Corporation - Functions and Services.

Unit – III

Special financial institutions –IFCI, IDBI, ICICI, IBRD, IMF, NABARD – EXIM Bank – SFCS – SIDCS – Functions and Services.

Unit- IV

National Stock Exchange (NSE) – OTCEI – SEBI – Powers and Functions – Discount and Finance House of India (DFHI).

Unit-V

Merchant banking – Functions and Services - Underwriting – Credit rating agencies in India.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students gained knowledge on role of financial service sector	3
CO-2	Acquired knowledge on functions of NIM, SEBI	2
CO-3	Learnt the concept of role of UTI and mutual funds	6,6
CO-4	Students understood the concepts of leasing, factoring and purchase	9

Text book:

1. Gorden and Natarajan:Financial Institution and Services, HPH. Publications Chennai.(2009)

Reference books:

1. Bhole L.M.:Financial Institutions and Market,TMH,Chennai Publications (2002)
2. Avadhani V.A.: Investment and Securities marketsin India, HPH Publications.(2009)
3. KulKarni P.V:Corporate Finance – HPH Publications
4. Khan M.Y. :Financial Services, TMH. Publications

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Core Course-XX

Entrepreneurship Development

Semester- VI **Credit: 3**

Course Code: 18U6BA20 **Hours/Week: 4**

Objectives:

- To enable the students to develop and strengthen the entrepreneurship quality and acquire the skills to run small scale industry.

Unit-I

Entrepreneurship Concepts, Types and Functions of Entrepreneurs – Entrepreneurial Development in India – Role of Entrepreneurs in Economic Development – Entrepreneurial Development Programme – Phases of Entrepreneurial Development Programme – Influence of Environment Factor in Training and Development of entrepreneurs.

Unit-II

Project Development – Business Ideas-Project identification and Formulation –Classification of Project Feasibility studies –Project Appraisal Methods –Project Design, Network analysis -Financial analysis.

Unit-III

Financing Entrepreneurs – Institutional finance to entrepreneurs – Role of IFC, IDBI, ICICI, IRCI, SIDB, LIC, SFC, TIIC and Commercial Banks in Financing Entrepreneurs.

Unit-IV

Promoting Enterprises – SSI – MSME – Role and Growth of SSI – Regulations governing SSI – Incentive and Concessions for SSI units – sickness in SSI – Causes and Remedies.

Unit-V

Institutions and development of entrepreneurs – Role of DIC, SISI, SIDCO, NSIC, MAYE, KVIC, TCO'S, ITCOT and Entrepreneurial Guidance Bureau – Incentives and Subsides to Entrepreneurs – Problems and Prospects of Entrepreneurs – Developing Women and Rural Entrepreneurs – Entrepreneurs Motivation.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students understand clearly about the Entrepreneurship	1,5
CO-2	Know the various institute that helping in entrepreneurship	3
CO-3	Gained knowledge about various Institutional finance entrepreneurs	5
CO-4	Know the role of DIC, SISI, SIDCO, NSIC, MAYE, KVIC, TC etc.	6,9

Text Book:

1. Gupta, C.B. and Srinivasan N.P., Entrepreneurical Development

Reference Books

1. Khanha, Entrepreneurial Development
2. Vasanth Desai, Organization and Management of small Industries
3. Saravanavel, P., Entrepreneurship Development
4. Tandon, B.C., Environment and Entrepreneurship

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Project Work

Semester- VI **Credit : 2**

Course Code: 18U6BAPR01 **Hours/Week: 3**

Objectives:

- To equip the students project with practical skills to use the project work

(Project Work Guidelines Specimen – I)

A Study on Effectiveness of Training Among 'E' Level Employees of Watch Division in Titan Industries Limited, Hosur.

A Project Report submitted to the Periyar University in partial fulfillment of the requirements for the award of the Degree of

Bachelor of Business Administration

By

(Name of the Student)

Reg. No.....

Under the guidance of

(Name of the Guide
Designation, Department, College)

College emblem

(Department, College Name and Place
Month and Year of Submission)

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

(Project Work Guidelines Specimen – II)

Certificate

This is to certify that the project entitled **"A Study on Effectiveness of Training among 'E' level Employees of Watch division in Titan Industries Limited, Hosur"** is a bonafide work carried out by..... Register No ..... under my supervision and guidance during the academic year ..... in partial fulfillment of the requirements for the award of the **Degree of Bachelor of Business Administration** and the work is an original one and has not formed basis for the award of any degree, diploma, associateship, fellowship or any other similar title.

(HOD Signature) **(Guide Signature)**

Project Work evaluation viva – voce examination conduced on .....

Internal Examiner **External Examiner**

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

(Project Work Guidelines Specimen – III)

Declaration

I hereby declare that this Project work entitled **"A Study On Effectiveness Of Training Among "E" Level Employees Of Watch Division In Titan Industries Limited, Hosur"** submitted to the PERIYAR UNIVERSITY, SALEM in partial fulfillment of the requirements for the Award of the Degree of **Bachelor of Business Administration** is an original one and has not been submitted earlier either to this University or to any other Institution for the award of any Degree / Diploma.

Date :

Place : **(Candidate Signature)**

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Core Course-XXI

Training and Development

Semester- VI **Credit : 3**

Course Code: 18U6BA21 **Hours/Week: 4**

Objectives:

- To develop innovative skills and open up avenues for employability.

Unit – I

Concept of Organizational Training and Development – Identifying Training needs – Types of training – Organisation for training – Objectives, Structures and Functions of Training Department – Execution of Training Programmes – Evaluation of Training Programmes.

Unit – II

Techniques of on-the-job training – Coaching – Apprenticeship – Job rotation – Job instruction – Training by Supervisors – Techniques of off-the-job Training, Case studies, Role playing - Programmed Instructions, T-Group training – Simulations.

Unit – III

Leader centred Techniques of Management Development – Lecturers - Coaching, - Student centred Techniques - Dicussions - Case studies – Conferences – Workshops – Syndicate – Brain stroming – Role playing – Psycho drama – Simulation – Inbasket Games.

Unit – IV

Sensitivity Training – Selflearning techniques - Planned reading - Correspondence Courses - Programmed instructions - Audio Visual lessons- Manuals and Hand-outs.

Unit – V

Counselling - Assistant to position - Under - Study - Junior Board, Committee Assignments – Relative merits and limitations of M.D. Techniques.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students learnt about remuneration and welfare measures	3
CO-2	Gained knowledge on training and career development	8
CO-3	Students learnt about human resource audit, nature approaches	9
CO-4	Gained facts about labour relation and Industrial disputes	4,6

Text book:

1. M.C. Larney, William J: Management Training: Cases and Principles,Richard, D.
   Irwin, Illinois.

Reference books:

1. C. Gehee, William Tahayer, Paul W:Training in Busines and Industry, John Wiley & Sons, Publications. New York.
2. Sikula, A.F:Personnel Administration and Human Resources Development, John Wiley, Publications.,New York.
3. Hacoon, R.J:Management Training- Aims and Methods, English Universities Press, Publications.London.
4. Ahmed, Abad Management and Organisational Development,

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Elective-II

(Group – A)

Retail Management

Semester- VI **Credit: 4**

Course Code: 18U6BAE05 **Hours/Week : 5**

Objectives:

- To enable the students to understand the concepts of retail management.
- To help the students to know the operation of retailing.

Unit-I

Definition of Retailing Marketing – Features of modern Retail Marketing – Importance of Retail Marketing – Types of Retail Marketing - Retail marketing Mix.

Unit-II

Franchising – Definition – Advantages – Hyper market – Difference between Super market and hyper market – International retailing – Factors involved in international retailing.

Unit-III

Introduction – Service is marketing - Nature and Types of services – Services Vs Goods marketing – Service marketing triangle – Environment of services marketing – Models of service – Consumer behavior – Service quality and GAP model.

Unit-IV

Services marketing mix – Need for expanded marketing mix – Planning for Services offer – Pricing – Promotion and distribution of services – Management of People – Matching Demand for and supply of services.

Unit-V

Services marketing applications – Marketing of Financial, Hospitality, Tourism and Educational services – International marketing of services and GATTs.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Acquired knowledge on sales promotion techniques, channel budgeting	4
CO-2	Students have gained knowledge on marketing of services	3
CO-3	Students gained knowledge on advertising and sales promotio	8

Text Books:

1. Rao:Services Marketing, Pearson Education, Publications.India

2.David Gilbert;Retail Marketing Management, Pearson Education-Publications. India

Reference Books:

1. Helen Woodruffe. : Service MarketingMacmillan. Publications.
2. HarshVerma: Service Marketing Global Business Press Publications..3. Ravishankar:"Service Marketing- The Indian Experience, Manas. Publications.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Elective-II

(Group – B)

E – Business

Semester- VI **Credit: 4**

Course Code: 18U6BAE06 **Hours/Week : 5**

Objectives:

- To impart basic knowledge and skills on E-Business practices to students.

Unit – I

Meaning of E-Business – Traditional Business Vs E- Business – Economic Forces for E - Business-Value Chains - Technology Infrastructure – The Internet And World Wide Web- Origin and Growth – Internet Protocols – Markup Languages – Internet Connection options.

Unit – II

Business Strategies for E -Business – B to B Strategies –Electronic Data Interchange –EDI to E-Business – Supply Chain Management - Purchasing ,Logistics and Support activities – Electronic Market Places and portals – Web Auctions and Related Business.

Unit – III

Marketing on the Web - Strategies – Communication – Customer Bahaviour and Relationship Intensity – Advertising - E-Mail Marketing – CRM – Brands on the Web – Elements – Selling on the Web - Revenue Models –Website usability – Online Trading –

E- Banking.

Unit- IV

Environment of E-Business – International nature – Legal Environment – Ethical Issues

-E-Business Security - Objectives – Protecting Client Computers – Protecting E-Commerce Channels - Protecting the Web Server.

Unit-V

Payment System for E –Business – payment Cards – Electronic Cash - Electronic Wallets – ATM Cards – Stored Value Cards – Planning for E-Business – Initiative – Strategies for Developing E – Business Websites- Managing implementations

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students gained knowledge on E-Business in present scenari	3
CO-2	Know the concept of B2B, B2C and EDI	6
CO-3	Know the various environmental factors of E-Business	8

Text book:

1. Greg Holden-Starting an E-commerce Business for Dummies H Edition

Reference books:

1. Electronic Commerce-gray P.Schneider –Thom Son
2. Frontiers of E Commerce- Ravi kalakota,Andrew Whinston – Addison Wesley

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Elective-II

(Group – C)

Insurance and Risk Management

Semester- VI **Credit: 4**

Course Code: 18U6BAE07 **Hours/Week : 5**

Objectives:

To enable the students to understand the concepts of risk management.

To help the students to know the regulations of insurance.

Unit I

Definition of Insurance – Insurable risk – Principles of insurance – Kinds of insurance – Costs and benefits of insurance – Pooling in insurance – Factors that limit the insurability of risk – Reinsurance.

Unit – II

Insurance business in India – Framework of insurance business – privatization of insurance business – Insurance Regulatory and Development Authority (IRDA) – Govt. Policy on insurance sector.

Unit – III

Understanding Risk: Types of risk – Risk management - Objectives - Risk identification and measurement - Pooling arrangements and diversification of risk.

Unit – IV

Risk aversion and demand for insurance – By individuals- By corporations- Insurability of risk- contractual provisions- Legal doctrine- - Loss control –Risk retention and reduction decisions.

Unit – V

Analytical tools used in corporate risk management -– products liability – Environmental liability – Directors and Officers liability-Issues in liability risk and management.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Understand the concept of insurance in everyday life of people	2,5
CO-2	History and procedures of taking the insurance and its benef	1,8.9
CO-3	Aware of risk factors and its obligations, etc.	3

Text Book:

1. George E. Rejda: Principles of Risk Management & Insurance, Pearson:NewDelhi.

Reference Book:

1. Harrington. Niehaus: Risk Management & Insurance, McGraw Hill: New York.
2. P.K. Gupta: Insurance & Risk Management, Himalaya Publishing House: Mumbai.
3. Insurance Institute of India – IC 86 – Risk Management

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
BBA

Elective-II

(Group – D)

Logistics and Supply Chain Management

Semester- VI **Credit: 4**

Course Code: 18U6BAE08 **Hours/Week : 5**

Objectives:

- To introduce basic ideas and to impart knowledge on logistics and supply chain management.

Unit - I

Logistics Design – Logistics Management – Definition – Meaning – Types – Transportation – Inventory – Warehousing – Material Handling and Packaging – Organizational Structures.

Unit - II

Logistics Network – Logistics Resources – Principles of Logistics Information – Application of Information Technologies – Barcode – Scanning.

Unit - III

Logistics Demand – Forecasting – The Nature of Demand – Forecast Components – Forecast Techniques – Forecast Error - Logistics Location Structure.

Unit - IV

Supply Chain Management Models – Definition – Objectives – Applications – Types – Conceptual Models – Key issues in supply chain management.

Unit - V

Supply Chain Management Strategy – Inventory Management – Push and Pull Systems – Demand and Cash flow in supply chain management – Enterprise Resource Planning (ERP) – Supply chain management matrix.

Note: Theories and concepts only.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Knowledge on concepts of logistics management & phys distribution	3,6
CO-2	Gained knowledge on inventory control techniques and st keeping	2
CO-3	Students learnt supply chain management needs and metho	7
CO-4	Acquired knowledge on Supply Chain Performance Drivers	2,9

Text books:

1. DonaldBolversox andDaavis J. Closs:Logistics Management – The integratedsupplychain process Tata McGraw Hill,(2006.)

Reference books:

1. Rahul,V.Altekar:Supply chain Management, Concepts& Cases, PHILearning, (2006)
2. Ailawadi, Rakesh Singh: Logistics Management", PHI Learning (2006)

SELVAMM ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

(Nationally Re-Accredited (2nd Cycle) 'A' Grade by NAAC)

UGC Recognized 2(f) and 12(B) Institution

NAMAKKAL-637003

Degree of Bachelor of Business Administration (B.B.A. CA)

CBCS Pattern

Semester System

Regulations and Syllabus

(Effective from the Academic Year 2018-2019)

Vision

To enhance premier business education through a suitable dynamic curriculum in the era of liberalization, privatization and globalization and to give value based management graduates to the society.

Mission

Our mission is to provide a balance of academic perspectives with practical applications and engage our students in learning experiences that enable them to become knowledgeable, motivated and resourceful to the business professionals.

Programme Outcomes (UG)

PO 1: Communicate Effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.

PO 2: **Environment Concern** - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
Bachelor of Business Administration with Computer Application

Structure of BBA (Computer Application) Programme under CBCS Pattern For Autonomous

(From 2018 and Thereafter)

Curriculum and Scheme of Examinations

Sem	Course Code	Part	Course	Hrs	Credit	Marks		
						Int	Ext	Total
I	18U1FTA01	I	Tamil-I	5	4	25	75	100
	18U1FEN01	II	English-I	5	4	25	75	100
	18U1BX01	III	Management Practices	6	5	25	75	100
	18U1BX02	III	Introduction to Computer Technology	6	4	25	75	100
	18U1CMA01	III	Allied-I Principles of Accountancy	6	4	25	75	100
	18U1VE01	IV	Value Education – Yoga	2	1	25	75	100
			Total	**30**	**22**	**150**	**450**	**600**
II	18U2FTA02	I	Tamil-II	5	4	25	75	100
	18U2FEN02	II	English-II	5	4	25	75	100
	18U2BX03	III	Organizational behavior	5	4	25	75	100
	18U2BX04	III	Business Application Software	5	3	25	75	100
	18U2BXP01	III	Practical-I MS-Office	3	2	25	75	100
	18U2STA12	III	Quantitative Techniques	5	4	25	75	100
	18U2ES01	IV	Environmental Studies	1	1	25	75	100
	18U2VE02	IV	Values for Life	1	1	25	75	100
			Total	**30**	**23**	**200**	**600**	**800**
III	18U3BX05	III	Financial Accounting	6	5	25	75	100
	18U3BX06	III	Business Communication	6	5	25	75	100
	18U3BX07	III	Legal aspects in Business	6	5	25	75	100
	18U3BX08	III	Internet and Web Design	5	3	25	75	100
	18U3BXP02	III	Practical- II HTML	3	2	25	75	100
	18U3BXS01	IV	SBEC-1 Inplant Training	2	2	25	75	100
	18U3BXN01	IV	NMEC-I Principles of	2	2	25	75	100
			Total	**30**	**24**	**175**	**525**	**700**
	18U4BX09	III	Management Accounting	6	5	25	75	100
	18U4BX10	III	Human Resource	6	5	25	75	100

IV	18U4BX11	III	Marketing Management	6	4	25	75	100
	18U4BX12	III	Desk Top Publishing Package	5	3	25	75	100
	18U4BXP03	III	Practical – III DTP	3	2	25	75	100
	18U4BXPS02	IV	SBEC-II-Corporate Employability Skill	2	2	25	75	100
	18U4BXN02	IV	NMEC-II -Human resource Management	2	2	25	75	100
Total				**30**	**23**	**175**	**525**	**700**
V	18U5BX13	III	Cost Accounting	6	5	25	75	100
	185U5BX14	III	Financial Management	6	5	25	75	100
	18U5BX15	III	Research Methods in Management	6	5	25	75	100
	18U5BX16	III	Visual Basic	5	3	25	75	100
	18U5BXP04	III	Practical- IV Visual Basic	3	2	25	75	100
		III	Electives-I	4	3	25	75	100
Total				**30**	**23**	**150**	**450**	**600**
VI	18U6BX17	III	Strategic management	5	4	25	75	100
	18U6BX18	III	Production and Materials Management	5	4	25	75	100
	18U6BX19	III	Advertising and Salesmanship	4	3	25	75	100
	18U6BX20	III	Database Management System	5	4	25	75	100
	18U6BXPR01	III	Project and Viva-Voce	5	4	25	75	100
		III	Elective-II	4	3	25	75	100
	18U6BXE01	V	Extension Activities (Empowering Rural People -ERP)	-	2	-	-	-
		IV	Skills(LSRW) Through English	2	1			
Total				**30**	**25**	**150**	**450**	**600**
Grant Total				**180**	**140**	**1000**	**3000**	**4000**

Electives-I

Sem	Part	Subject Code	Subject
V	II	18U5BXE01	Services Marketing
	II	18U5BXE02	Business Practices
	II	18U5BXE03	Investment Management
	II	18U5BXE04	Total Quality Management

Electives-II

Sem	Part	Subject Code	Subject
VI	II	18U6BXE05	Retail Management
	II	18U6BXE06	Entrepreneurship Development
	II	18U6BXE07	Insurance and Risk Management
	II	18U6BXE08	Logistics and Supply chain Management

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
Bachelor of Business Administration with Computer Application

Degree of Bachelor of Business Administration

With Computer Application BBA-(CA)

Choice Based Credit System (CBCS)

Semester-I

Cource Code	Part	Study Components	Courses	Hours/ Week	Credits
18U1FTA01	Part-I	Languages	Tamil or anyone of the modern (Indian or Foreign) or Classical Languages-I	5	4
18U1FEN01	Part-II	Languages	English-I	5	4
18U1BX01	Part-III	Core Course-I	Management Practices	6	5
18U1BX02		Core Course-II	Introduction to Computer Technology	6	4
18U1CMA01		Allied Course-I	Principles of Accountancy	6	4
18U1VE01	Part-IV-B	Value Education-I	Yoga practice	2	1
			Total	**30**	**22**

Semester-II

Cource Code	Part	Study Components	Courses	Hours/ Week	Credits
18U2FTA02	Part-I	Languages	Tamil or anyone of the	5	4
18U2FEN02	Part-II	Languages	English-II	5	4
18U2BX03	Part-III	Core Course-III	Organizational Behaviour	5	4
18U2BX04		Core Course-IV	Business Application Software	5	3
18U2BXP01		Practical - I	MS-Office	3	2
18U2STA12	Allied course-II	Allied Course-II	Quantitative Techniques	5	3
18U2ES01	Part-IV	Environmental Studies	Environmental Studies	1	1
18U2VE02	Part-IV	Value Education-II	Value for life	1	1
			Total	**30**	**23**

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
Bachelor of Business Administration with Computer Application

Semester-III

Cource Code	Part	Study Components	Courses	Hours/ Week	Credits
18U3BX05	Part-III	Core Course-V	Financial Accounting	6	5
18U3BX06		Core Course-VI	Business Communication	6	5
18U3BX07		Core Course-VII	Business Law	6	5
18U3BX08		Core Course-VIII	Internet and Web Design	5	3
18U3BXP02		Practical - II	HTML	3	2
18U3BXS01	Part-IV	SBEC-I	Inplant Training	2	2
18U3BXN01	Part-IV	NMEC-I	Principles of Management	2	2
Total				**30**	**24**

Semester-IV

Cource Code	Part	Study Components	Courses	Hours/ Week	Credits
18U4BX09	Part-III	Core Course-IX	Management Accounting	6	5
18U4BX10		Core Course X	Human Resource Management	6	5
18U4BX11		Core Course-XI	Marketing Management	6	4
18U4BX12		Core Course-XII	Desk Top Publishing Package	5	3
18U4BXP02		Practical – III	DTP	3	2
18U4BXPS02	Part-IV	SBEC-II	Corporate Employability Skills	2	2
18U4BXN02	Part-IV	NMEC-II	Human Resource Management	2	2
			Total	**30**	**23**

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
Bachelor of Business Administration with Computer Application

Semester-V

Cource Code	Part	Study Components	Courses	Hours/ Week	Credits
18U5BX13	Part-III	Core Course-XIII	Cost Accounting	6	5
18U5BX14		Core Course-XIV	Financial Management	6	5
18U5BX15		Core Course-XV	Research Methods in Management	6	5
18U5BX16		Core Course-XVI	Visual Basic	5	3
18U5BXP04		Practical-IV	Visual Basic	3	2
		Electives – I		4	3
			Total	**30**	**23**

Semester-VI

Cource Code	Part	Study Components	Courses	Hours / Week	Credits
18U6BX17	Part-III	Core Course-XVII	Strategic Management	5	4
18U6BX18		Core Course-XVIII	Production and Materials Management	5	4
18U6BX19		Core Course-XIX	Advertisement and Salesmanship	4	3
18U6BX20		Core Course-XX	Data Base Management System	5	4
18U6BXPR01		Core Course-XX1	Project and Viva-Voce	5	4
		Elective-II		4	3
18U6BXE01	Part-V	Extension Activities (Empowering Rural People – ERP)			2
	IV		Skills (LSRW)through English	2	1
Total				**30**	**25**

Programme Specific Outcomes (PSO):

PSO-1	Understand of the corporate world
PSO-2	Analyze the theoretical knowledge with the practical aspects of Organizational setting and techniques or management.
PSO-3	Determine conceptual and analytical abilities required for effective decision making.
PSO-4	Understand the dynamic and complex working environment of Business.
PSO-5	Understand the problems faced by the business sector in the Current scenario.
PSO-6	Understand the rapid changes of financial services include banking and insurance sectors.
PSO-7	Understand the micro and macro marketing environment.
PSO-8	Analyze the various financial and accounting concept including Balance sheet , trial balance, etc.,
PSO-9	Understand the international trade procedure and documentation.
PSO-10	Analyse the various aspect of business research in the area of marketing, human resource and finance.

Core Course-I

Management Practices

Semester- I **Credit: 5**

CourseCode: 18U1BX01 **Hours/Week: 6**

Objectives:

- To understand the fundamental concepts of management practice.
- On successful completion of this course, the students will get an opportunity to examine and apply appropriate theories / concepts about managing the business effectively

Unit-I

Management Process - Principles of management - Functions of management – Contributions of F.W.Taylor, Henry Fayol .

Unit-II

Planning – Importance – Advantages - Principles of planning - Steps in planning - Decision making - Definition, Principles, Types of decisions - Process of decision making - Management By Objective (MBO) – Steps – Process – Merits - Limitations.

Unit-III

Organising – Definition - Need for organization – Process - Organizational structure - Line, Functional - Line & Staff organization - Span of management - Delegation of authority -Centralization Vs Decentralization.

Unit-IV

Directing – Meaning - Importance, Principles – Motivation - Theories of motivation - Maslow's need hierarchy theory - Herzberg's two factor theory. Co-ordinating – Need – Principles - Approaches to achieve effective co-ordination.

Unit-V

Controlling – Meaning - Elements and Significance - Steps in control process - Controlling techniques.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Acquired knowledge in the process and levels of managemen the organization	3,6
CO-2	Students understood types and structure of organization	2,4
CO-3	Gained knowledge on staffing the employees	1,5

Text Books:

1. L.M.Prasad : Principles of Management, Sultan Chand & Sons publications, New Delhi (2016)
2. C.B.Gupta : Business organization & Management S.Chand & Sons publications New Delhi (2017)

Reference Books:

1. Tripathi.P.C & P.N.Reddy : Principles of Management.TMH. Publications New Delhi (2012)
2. Dingar Pagare: Business Management, Sultan Chand & Sons. Publications New Delhi (2018)

Core Course-II

Introduction to Computer Technology

Semester- I **Credit : 4**

Course Code: 18U1BX02 **Hours/Week: 6**

Objectives:

- To know the students computer and its uses in the management
- To apply their computer knowledge in management

Unit -I

Introduction to Computers -Classification -Anatomy of a Digital Computer - Number System -Logic gates (AND, OR, NOT, NAND, NOR).

Unit -II

Input devices – Output devices –Memory units - Auxiliary Storage Devices - Magnetic tape - Hard disk - Floppy Disk- CD-ROM - Memory organization - RAM ROM, EPROM, and EEPROM.

Unit -III

Computer software -operating system –programming languages –Computer networks.

Unit IV

Internet and WWW-Electronic mail: Introduction –E-mail – Domain name and addresses-Advantages and disadvantages of internets- Introduction to Multimedia - Multimedia tools - E-commerce Data Processing.

Unit -V

Information system: The information system department – Types of information system – The system development life cycle. Computer programmes -Structured and object oriented programming - Evaluation of programming languages - High level languages -The process of programming.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addres
CO-1	To understand the difference between an operating system and application program	3,6
CO-2	To identify the principal components of a given computer syster	2,4
CO-3	To understand the fundamental role of each components	1,5

Text Books:

1. Alexis Leon and Mathews Leon - Fundamentals of Information technology vikas publishing House Pvt Ltd.

2. Peter Norto - Introduction to computer, 2nd Edition,

Reference Books:

1. S.P. Rajagopalan- Computer Applications in Business Vikas publishing House Pvt. Ltd

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Allied Course-I

Principles of Accountancy

Semester- I **Credit : 4**

Course Code: 18U1CMA01 **Hours/Week: 6**

Objectives:

- To enable the students to acquire basic knowledge of accounting principles, concepts and conventions.
- To make the students to acquire the skill to prepare the trial balance and final accounts.

Unit - I

Basic Concepts: Fundamentals of Book Keeping-Meaning-Definition-Book-keeping Vs. Accounting. Objectives- Advantages and limitations of accounting-Methods of accounting- Double entry system- Meaning-Advantages- Types of accounts- Accounting Rules-Accounting concepts and conventions.

Unit - II

Journal- Ledger- Balance of ledger -Trial balance.

Unit-III

Final accounts of a sole trading concern- Trading, Profit & Loss a/c and Balance sheet with adjustments, Difference between Trading a/c- P&L a/c and Balance sheet.

Unit - IV

will rectification of errors.

Rectification of errors-Classification of errors-rectification in different stages of accounting cycle-basic principle of rectification of errors-Suspense account.

Unit – V

Final accounts of Non- trading concerns- meaning and treatment- Difference between Receipts and payments account& Income and expenditure

account.(simple problems)- Receipts and payments account- Income and expenditure account and Balance Sheet.

Note: Distribution of marks - Problems 75% and Theory 25%.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students learnt the basic concept of accounting and prepara of ledger	3,4
CO-2	knowledge in the preparation of the trading and non trad organization	7,8
CO-3	Gained knowledge on calculation of profit for small traders	4

Text Books:

1. Financial Accounting - Reddy and Murthy - Margham Publications, Chennai -17. (2012)
2. Financial accounting - R.L Gupta and V.K Gupta, Sultan chand& Sons, New Delhi. (2014)

Reference Books:

1. Financial accounting - S.P Jain & K.L Narang, Kalyani publishers, Ludhiana. (2018)
2. Financial Accounting - Dr. S Ganesan and Kalavathi ,Tirumalai Publications, Nagercoil.
3. Advanced Accounting I - Dr. Chandra Bose PHI Learning (P) Ltd., Delhi. (2010)

Core Course-III

ORGANISATIONAL BEHAVIOUR

SEMESTER- II **Credit : 4**

Course CODE: 18U2BX03 **Hours/Week: 5**

Objectives:

- To understand the fundamental concepts of Organisational Behaviour
- To make the students learn the applications of the concepts.

UNIT – I

Meaning - Importance and Scope of Organizational Behaviour – Contributing Disciplines to Organizational Behaviour - Models of Organizational Behaviour-Human relations approach.

UNIT – II

Individual Differences – Personality - Determinants of Personality - Theories of Personality. Attitude – Meaning - Formation of Attitude – Types of Attitudes.

UNIT – III

Perception – Meaning – Process - Factors affecting Perception - Learning – Meaning –Process - Theories of Learning.

UNIT – IV

Group – Meaning - Types - Group Dynamics - Cohesiveness – Conflict - Types of Conflict – Resolution of conflict.

UNIT – V

Leadership - Styles - Theories – Trait, Contingency, Behavioral – Counseling and Guidance - Importance of counselor - Types of counseling- Organizational Change - Resistance to Change - Methods to Overcome Resistance to Change.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Identify the study of Human Behaviour in organization	2,6
CO-2	Describe the personality and its determinate of personality	9,3
CO-3	Identify the conflict and its type of conflict	1
CO-4	Identify the organization change and steps in managing chan	7

Text Books:

1. L.M. Prasad: Organisational Behaviour, Sultan Chand & Sons Publications New Delhi

Reference Book:

1. Keith Davis: Human Behaviour at Work, TMH publications (1985)
2. Ghos: Industrial Psychology, Sultan chand &Sons publications
3. Fred Luthans: Organisational Behaviour, McGraw Hill publications
4. Hippo: Organisational Behaviour, Sultan Chand & Sons publications

Core Course

BUSINESS APPLICATION SOFTWARE

SEMESTER- II **Credit : 3**

COURSE CODE: 18U2BX04 **Hours/Week: 5**

Objectives:

- To know the students computer and its uses in the Management
- To apply their computer knowledge in Management

UNIT I

Introduction to Microsoft Office – Ms Word – Creating and Editing Documents – Menus, Commands, Tool-bars and Icons – Formatting Documents – Creating Tables – Using Graphics, Templates and Wizards, Finding and Replacing Text and Spell Checking Mail Merge.

UNIT II

MS Excel**:** Spread Sheet Overview – Menus, Toolbars, Icon – Creating Worksheet – Editing and Formatting – Excel Formulas and Function – Creating Charts – Data Base in Work Sheets, Data Forms, Sort, Filter.

UNIT III

MS-Power point**:** Introduction- Menus - Toolbars – Text and Formats – Animation, Art and Sound – Making the Presentation and Template

UNIT IV

MS-Access: Data Base Overview – Creating and Database – Modifying Table and Creating Form – Criteria Value – Creating Reports – Mailing Labels.

UNIT V

Ms Front page: Introduction – Menus and Tools Bars – Create and Manage Complete Websites – Format Websites – Creating a e-page with the without Wizard.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Describe the usage of computers and why computers essential components in business and society	3,6
CO-2	Utilize the Internet Web resources and evaluate on-line business system	2,4
CO-3	Identify categories of programs, system software applications	1,5

Text Book:

1. Sanjay saxena **,**MS Office 2000 for everyone. Vikas Publishing House Pvt. Ltd.

Reference Book:

1. Microsoft step by step -HTML and XH, Faith wempen, Prentice hall of India ltd.,

PRACTICAL – I

MS-OFFICE

SEMESTER- II **Credit : 2**

COURSE CODE: 18U2BXP01 **Hours/Week: 3**

Objectives:

To equip the students with practical skills to use Ms Office Package

Ms-Word:

1. (a) Starting Ms-Word, Create, Save, Print (with Options), Close and Edit Document.

(b) Study of Ms-Word, Menu / Tool Bars.

2. (a) Create a document, Save it and edit the document as follows-

(i) Find, Replace options

(ii) Cut, Copy, Paste options

(iii) Undo, Redo options

(b) Format the document using Bold, Underling and Italic.

(c) Change Character size using the font dialog box.

(d) Formatting Paragraph Center, Left align, and Right align.

(e) Formatting Paragraph and line spacing using Bullets and Numbering in Paragraphs.

(f) Creating, Hearing Paragraphs.

3. Using tab setting, enhancing the documents (Header, Footer, Page Setup, Border, Opening and Closing Tool bars, Print preview)

4. Creating Tables in a document, selecting rows and columns sort the record by Using tables, format painter and Auto Format.

5. Mail Merge in word (Creating main document, data source, inserting merger fields and viewing merge data, viewing & printing merged letter, using mail merge to print envelope, creating mailing labels.)

Ms-Excel:

1. (a) Create a worksheet, Move /Copy/ insert and delete rows & columns.

(Usage of Cut, Paste Commands copying a single cell, Copying arrange of data, Filling up cell, Undo command, Inserting arrow, column, Deleting rows and columns.)

(b) Formatting worksheets

(i) Bold Style.

(ii) Italic Style.

(iii) Font Size change

(iv) Formatting numbers (Auto fill, selection command, Currency Format, Currency Symbols)

(v) Specifying percentage (%) scientific notations.

(vi) Drawing border around cells.

(vii) Print a worksheet (Print Preview, Margin setting, Header and Footer.)

2. (a) Database concept – Database record file and field name – creating and sorting a database and maintaining a database (Data Form)

(b) Using auto filter, advanced filter.

(c) Creating sub totals and grand totals – using database functions.

3. Creating Charts.

(i) Using Chart wizard (5 Steps)

(ii) Changing the chart type (Pie, Bar, Line)

(iii) Inserting titles fro the Axes X, Y

(iv) Changing Colors.

(v) Printing Charts.

4. (a) Using date, time and Math Functions.

(i) Entering Current Date.

(ii) Using Date Arithmetic (adding and subtracting dates)

(iii) Date Functions (Day, Month, Year)

(iv) Using time Functions (Hour, Minute, second)

(b) Maths Functions

(i) SUM, COUNT, AVERAGE

(ii) MAX, MIN

(iii) STDDEV, VAR

(iv) ABS, EXP, INT

(v) LOG10 & LOG

(vi) MOD, ROUND, SQRT

(vii) Using Auto Sum.

(c) Logical and Financial Functions.

Logical (IF / AND / OR / NOT)

Financial (PMT / FV, NPER / RATE)

5. (i) Creating & Running a Macro.

(ii) Assigning a button to a defined Macro.

(iii) Editing a Macro.

Ms-PowerPoint:

1. Creating a Presentation using Auto Content Wizard.
2. Different Views in PowerPoint presentation.
3. Setting Animations effects / grouping / ungrouping / cropping PowerPoint objects.
4. Printing a presentation / Importing – Exporting files.
5. Creating an organisational chart in PowerPoint.

Allied Course-II

QUANTITATIVE TECHNIQUES

SEMESTER- II **Credit : 4**

COURSE CODE: 18U2STA12 **Hours/Week: 6**

Objectives:

To impart knowledge to the students about matrix and statistical tools and its application.

UNIT -I

Matrix Algebra -Definition -Types of Matrices -Matrix operations - Determinants - Inverse of a matrix - Simultaneous linear Equations (3 x 3 order only).

UNIT -II

Mathematics of Finance -Simple Interest -Compound Interest - Annuities -Profit and loss -Discount on bills.

UNIT -III

Statistics -Introduction -Definition -Limitations. Collection of data - Classification and Tabulation - Diagrammatic and graphical representation of Data - Measures of Central Tendency -Mean -Median -Mode -Geometric Mean -Harmonic Mean.

UNIT -IV

Measures of Dispersion -Range -Quartile Deviation - Mean Deviation – Standard Deviation -Co-efficient of Variation -Time series -Components of time series.

UNIT -V

Correlation -Meaning -Various types of correlation - Scatter Diagram - Karl Pearson Co-efficient of correlation -Rank Correlation. Regression - Regression lines - Regression Co-efficient.

NOTE:

Questions in Theory & Problems carry 30% and 70% of marks respectively.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Develop skills in structuring and analyzing business problems statistically.	2,6
CO-2	Use of quantitative methods in effective management decis making process	9,3
CO-3	Utilize computer based statistical software to perform statistical calculations.	1

Text Book:

1. P.R. Vittal, Business Mathematics and Statistics, Margham Publications.

Reference Books:

1. Dr.S.P.Gupta & Dr.M.P.Gupta, Business Statistics, Sultan & Chand Sons.
2. RSN Pillai & V.Bagavathi, Statistics, S.Chand.

Core Course-V

Financial Accounting

Semester- III **Credit : 4**

Course Code: 18U3BX05 **Hours/Week : 6**

Objectives:

- To enable the students to learn how to prepare final accounts accurately.
- At the end of the course students shall understand branch accounts and departmental accounts and apply the same in the real business world.

Unit - I

Meaning of Accounting – Definition - Characteristics. Accounting equations - Rules. Transaction Analysis for journal entries - Ledger. Posting of journal to ledger (Simple problems only)

Unit - II

Single Entry System- Meaning - Features - Statement of Affairs Method and Conversion Method. (problems)

Unit-III

Branch accounts – Meaning, Definition, Dependent branches – Stock and Debtor system – Independent branches (Foreign branches excluded)

Unit - IV

Departmental Accounts— Meaning, definitions, features, basis for allocation of expenses- Inter departmental transfer at cost or selling price.

Unit-V

Depreciation - Meaning - causes-characteristics – objectives – methods - fixed-diminishing - difference between straight line method and WDV method – annuity -provision and reserves. (Problems)

Note: - Distribution of Marks: Problems 75% and Theory- 25%

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Describe the useful information to student's business activi in future	2
CO-2	Write down the point to know the financial position of business students	4
CO-3	To find out the correct cost of production in business student	5

Text Books:

1. Financial accounting - Reddy & Murthy - Margham publications, Chennai - 17.
2. Advanced Accounting - R.L.Gupta & V.K.Gupta, Sultan Chand & Sons, New Delhi.
3. Financial Accounting – M. Sumathy, G. Sasikumar, Himalaya Publishing Pvt. Ltd., Mumbai. (2014)

Reference Books:

1. Advanced Accountancy - S.P.Jain & K.L.Narang, Kalyani Publishers., New Delhi. (2014)
2. Financial accounting - Narayanaswamy, learning private limited, New Delhi. (2014)
3. Advanced Accounting - M.C. Shukla. Sultan Chand & Sons, New Delhi. (2013)

Core Course-VI

Business Communication

Semester- I **Credit : 4**

Course Code: 18U3BX06 **Hours/Week: 6**

Objectives:

- To help the students to know the importance of communication in day to day business.
- To develop better written and oral business communication skills among the students and enable them to know the effective media of communication.
- To enhance their writing skills in various forms of business letters and reports.

Unit –I

Communication - Meaning - Objectives – Types - Principles - Barriers of communication – Effective communication.

Unit –II

Business Letter – Meaning - Layout of Business Letters - Business Enquires and Replies - Offer - Quotations - Orders - Complaint and Adjustments - Collection letters - Circular letters.

Unit –III

Bank correspondence - Insurance correspondence - Agency correspondence.

Unit –IV

Job Application - Resume Preparation – Joining report - Resignation report.

Unit –V

Report writing – Meaning - Importance - Characteristic of good report - Report by individuals -Report by committees.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students gained knowledge in the communication and to d the layout for a business letter	1,6
CO-2	Learnt to prepare a report, minutes and memorandum c meeting	2,9
CO-3	Classify the steps in drafting formal business reports.	3
CO-4	Knowledge gained on the latest technology	4,7

Text Book:

1.Rajendrapal & Koralahalli J.S, Essentials of business communication, Sultan Chand & Sons Publications New Delhi (2014)

Reference Books:

1. Ramesh M.S & Pattan Shetty : Business communication , RC publications.(2003)

2. Balasubrahmaniyan: Business Communication, Vikas Publishing House Pvt. Ltd.

Core Course-VII

Legal Aspects in Business

Semester- III **Credit : 4**

Course Code: 18U3BX07 **Hours/Week: 5**

Objectives:

- To enable the students to understand the realities of business and its legal consequences.

Unit-I

Business law – Meaning, Objectives – Sources – Law of contract – Types – Essential elements of a valid contract - Discharge of contract – Remedies for breach of contract – Wagering agreement.

Unit-II

Law of sale of goods – Sales and Agreement to sale – Types of goods – Caveat emptor – Transfer of property – Sale by non owners – Unpaid seller - Auction sales - Law of agency – Creation of agency – Classification of agents – Duties and Rights of an agent – Termination of an agency.

Unit-III

Companies – Kinds of companies – Difference between private and public companies – Formation of a company – Role of a promoter.

Unit-IV

Incorporation – Memorandum of association – Its contents – Alteration – Doctrine of ultra virus – Articles of association – Contents – Certificate of incorporation – Prospectus.

Unit-V

Winding up of a company – Types of winding up – Compulsory winding up – Voluntary winding up – Consequences of winding up

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Describe the law and commercial law rules and regulation	5
CO-2	Identify the agent, and its types of agent, duties right of agent	9
CO-3	Classify the difference between condition and warranty	1
CO-4	Identify the unpaid seller and its rights of unpaid seller	3,5

Text Book:

1. N.D.Kapoor : Elements of Business Law, Sultan chand and sons New Delhi, (2005)

Reference Books:

1. S.M.Shukla R.NSaxena: Indian company law, SPT Publishers
2. S.kathiresan and Dr.V.Ratha Business law, Prasanna publications Chennai, (2006)

Core Course-VIII

INTERNET AND WEB DESIGN

SEMESTER- III **Credit : 3**

COURSE CODE: 18U3BX08 **Hours/Week: 5**

Objectives:

- To make the students familiar with the use of Internet and the various facets of Information Technology.
- To Equip the students with Practical skills to use computer.

UNIT I

Internet: An Introduction -The World Wide Web -Internet / Web Browsing – Internet addressing -Internet Protocols -Electronic Mail-Email security-on line chatting and conferencing

UNIT-II

HTML Basics: Understanding HTML -Setting Up the Document Structure – Formatting Text by Using Tags -Using Lists and Backgrounds -Creating Hyperlinks and Anchors Style Sheets and Graphics: Introduction to Style sheets -Formatting Text by Using Style Sheets -Formatting Paragraphs by Using Style Sheets

UNIT-III

Graphics: Selecting a Graphics Format -Preparing Graphics for Web Use -Inserting - Graphics -Arranging Elements on the Page -Controlling Image Size and Padding - Hyper linking from Graphics -Utilizing Thumbnail Graphics -Including Alternate Text for Graphics.

UNIT -IV

Navigation: Creating Navigational Aids -Creating Tables -Formatting Tables

UNIT -V

Layouts: Creating Division-Based Layouts -Creating User Forms -Using Frames for Layout -Incorporating Audio and Video

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Analyze a web page and identify its elements and attributes	3,6
CO-2	Create web pages using HTML	2,4
CO-3	Build dynamic web page	1,5

Text book:

1. Microsoft Step by Step -HTML and XH, Faithe Wempen, Prentice Hall of India Private Limited, New Delhi

Reference Book:

1.. Margarete Levine Young, - The complete reference, Internet millennium Edition TMH

PRACTICAL –II

HTML

SEMESTER- III **Credit : 2**

COURSE CODE: 18U3BXP02 **Hours/Week: 3**

Objectives:

To equip the students with practical skills to use HTML Package

1. Prepare a Bio-data using HTML
2. Prepare an E-book using HTML in your favorite subject
3. Display information about your institution in multiple HTML pages with photos.
4. Display mark list of students using HTML tables
5. Prepare a E-Book using animated images and Multiples frames.

SBEC -I

Inplant Training

Semester- III **Credit : 2**

Course Code: 18U4BXSP01 **Hours/Week: 2**

Objectives:

- To enable the students to understand the industrial training and practices.

1. The students are expected to have a practical training in any business unit or undertaking to enable them to acquaint himself / herself with the procedure, practice and working of companies.
2. Each student should undergo industrial training for a minimum period of two weeks during the third semester vacation.
3. He / She shall undergo the above training in the institutions like banks, insurance companies, mutual funds, transport undertakings, private limited and public limited companies, public sector undertakings, hotels and hospitals, travel and tourist industries and financial institutions.
4. Students may make their own arrangements in fixing the companies for training. Candidates should submit a report in not less than 25 type written pages.
5. Candidates should submit the attendance certificate from the institution for having attended the training for 2 weeks.
6. Industrial training reports shall be prepared by the students under the supervision of the faculty of the department.
7. Industrial training report must contain the following :
   - Cover page
   - Copy of training certificate
   - Profile of the business unit

- Report about the work undertaken by them during the tenure of training.
- Observation about the concern.
- Findings

8. Industrial training certificate shall be forwarded to the university, one month before the commencement of the fourth semester university examinations.
9. Practical viva - voce examination will be conducted with internal & external examiners at the end of the 4th semester and the credits will be awarded

Course Outcomes:

CO No	**Upon completion of this course, students will be able to**	**PSOs addressed**
CO-1	Learn to appreciate work and its function in the economy	3
CO-2	Develop work habits and attitudes necessary for job success	1
CO-3	Develop communication, interpersonal and other critical skills the job interview process	3

NMEC -I

Principles of Management

Semester- III **Credit : 2**

Course Code: 18U3BXN01 **Hours/Week: 2**

Objectives:

- To understand the fundamental concepts of management practice.

Unit – I

Management – Meaning- Scope – Levels of Management – Functions of Management.

Unit – II

Planning – Meaning – Importance – Steps in Planning.

Unit – III

Organizing – Structure of Organization.

Unit – IV

Staffing and Directing – Meaning of Staffing – Elements of Directing

Unit – V

Controlling – Meaning and Techniques of Controlling.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Co-ordinate the organizational work and eliminate unproduc effort	2
CO-2	Classify the division of work leads to efficient performanc duties	3
CO-3	Identify to ensure the decision making through follow procedures	1,5

Text Books:

1. L.M.Prasad : Principles of Management, Sultan Chand &Sons publications, New Delhi (2000)
2. C.B.Gupta : Business organization & Management S.Chand & Sons publications New Delhi (2001)

Reference Books:

1. Tripathi.P.C & P.N.Reddy : Principles of Management.TMH. Publications New Delhi (2005)
2. Dingar Pagare: Business Management, Sultan Chand & Sons. Publications New Delhi
3. Bhusan.Y.K: Business organization Management, Sultan chand & Sons Publications

Core Course-IX

Management Accounting

Semester- IV **Credit : 4**

Course Code: 18U4BX09 **Hours/Week: 6**

Objectives:

- To introduce the students to the management technique to identify well governed corporate in practical life.

Unit - I

Management Accounting – Meaning – Objectives – advantages – limitations – management accounting Vs Financial accounting – management accounting Vs cost accounting.

Unit - II

Fund flow analysis – preparation of schedule of changes in working capital and fund flow statement.

Unit – III

Cash flow analysis – preparation of cash flow statement – distinctions between cash and fund flow statement.

Unit- IV

Accounting Ratios – Meaning – Types calculation of ratios – construction of balance sheet (simple problems only).

Unit-V

Budget and budgetary control – meaning – types – materials and production budget – flexible budget – cash budget – sales budget.

Note : Questions in Theory and Problems carry 30% and 70% of marks respectively.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Describe the concept of management accounting and advantage	4
CO-2	Classify the preparation of fun flow statement	7,9
CO-3	Describe the preparation of cash flow statement and its merit demerits	10
CO-4	Identity standard costing and its steps	2,4

Text Book:

1. Maheswari S.N. Principles of Management Accounting – Sultan Chand.

Reference Books

1. Man Mohan & Goyal, S.M., Principles of Management Accounting – Sathiya.
2. Reddy T.S., & Hariprasad Reddy. Y, Management Accounting, Margham Publication.
3. R.S.N. Pillai and Bagavathi, Management Accounting – Sultan Chand.

Core Course-X

Human Resource Management

Semester-IV **Credit : 4**

Course Code: 18U4BX10 **Hours/Week: 5**

Objectives:

- To introduce the students the basic concepts of HRM and to impart knowledge in Human Resource Planning and Development.

Unit – I

Human resource management – Definition – Objectives – Scope – Functions of HRM. Job analysis – Process of Job Analysis.

Unit – II

Human Resource Planning –Objectives of HR Planning – Process of Human Resource Planning – Recruitment – Sources of Recruitment . Selection procedure – Test and Interview – Types – Reference check – Final selection – Placement – Induction (orientation)

Unit – III

HRD – Need – Functions – Training – Methods – Executive Development – Differences between Training and Development . Career Planning – Process – Succession Planning – Concept of Quality of Work Life (QWL)

Unit – IV

Performance Appraisal – Process – Techniques– Differences between Performance Appraisal and Job evaluation. Job Evaluation – Process – Methods.

Unit – V

Promotion – Criteria – Benefits of Effective Promotion Policy , Transfer – Purpose of Transfer. Absenteeism – Causes – Measures – Labour turnover – Separation – VRS- Retirement – Dismissal

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Acquired knowledge on HRM, its environment, methods of selection, and Interview techniques	1,2
CO-2	Students learnt about remuneration and welfare measures	2
CO-3	Gained facts about labour relation and Industrial disputes	4
CO-4	Students learnt about human resource audit, nature approaches	6,7

Text book:

1. S.S.Khanka , Human Resources Management, Sultan Chand & Sons, New Delhi.

Reference books:

1. C.B. Mamoria,: Personnel Management, Himalaya publications house
2. J.Jayasankar , Human Resources Management, Margham publications, Chennai.
3. Kaushal Kumar:uman Resources Management – ABD Publishers.
4. K.Aswathappa:Human Resources and Personnel Management,TMH Publications
   New Delhi (2011)
5. Keith Davis:Human Relations at work, TMH. Publishers
6. G.R. Bassotia: Human Resources Management, Mangal Deep Publications.

Core Course-XI

Marketing Management

Semester- IV **Credit : 4**

Course Code: 18U4BX11 **Hours/Week: 5**

Objectives:

- To give basic knowledge on the concepts of marketing.
- To make the student understand the modern method of approaching in marketing

Unit – I

Marketing – Definition – Scope – Functions – Importance – Concept of marketing – Marketing Environment.

Unit – II

Market segmentation – Bases – Pre-requisites, Consumer Behaviour – Factors – Stages in buying decision process. Targeting and positioning- Meaning.

Unit – III

Marketing Mix – Elements – Product mix – Classifications of product – New product Development – Product Life cycle.

Unit – IV

Pricing Strategies – Methods of pricing – Types of Channels of distribution – Factors – Kinds of Middle men.

Unit – V

Promotion mix – Sales Promotion – Publicity - Advertising–Personal Selling. – Selection and operation of Sales forces – Recent trends in marketing.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Understood about the marketing and its various environme factors	4
CO-2	Gained knowledge on buyer behavior and market segmentati	6
CO-3	Students learnt about various stage in Product Life Cycle	2
CO-4	Students gained knowledge on advertising and sales promoti	3,9

Text book:

1.Rajan Nair N: Marketing Management, Sultan Chand & Sons, Publishers.New Delhi,(1993)

Reference books:

1. Philip Kotler: Marketing Management, Millennium Edition, PHI, Publishers,(2003)
2. Ramasamy V.S. and Namakumary S: Handbook of Marketing Management, Macmillan.Chennai.(2006)
3. Rajagopal: Marketing Management, Vikas Publishing House Pvt., Ltd.,
4. S. Jayachandran, Marketing Management, Excel Books.
5. Rajan Saxena: Marketing Management, TMH. Publishers. New Delhi

Core Course-XII

DESK TOP PUBLISHING PACKAGE

SEMESTER: IV **Credit : 3**

COURSE CODE: 18U4BX12 **Hours/Week: 5**

Objectives:

To know the students computer and its uses in the desk top publishing package

UNIT I

Introduction: Choosing the printing house – Hardware Requirement for DTP – General Design considerations – Text organization – Design common media Publication

UNIT II

Page maker: Getting started with page maker – Working in page maker – The page maker window – Working with text – Multiple text block ecliting text: making changing in the publication – Searching by format – Replacing the text Formatting Text: changing the Font size – Making the text bold – Removing Bold face from the text – Underlining the text – Aligning the text

UNIT III

Master pages: Adding text to the publication – Element on master pages – Creating a new publication – Working with columns managing and printing a publication: page orientation – Page numbering – Page size - Dimension – Table of contents- Managing books – Printing a publications

UNIT IV

Photoshop**:** Starting photo shop CS2 – Photo shop program window working with Images: Editing images – Color modes

UNIT V

Making selections: Moving a portion of images editing selections – Filing a selection- Transforming selections painting tools: Drawing tools - Retouching tools

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs address
CO-1	The students will be able to effectively & efficiently prod formatted text and graphics	3,6
CO-2	Candidates will be able to check that publications, spec versions of publications, are not already in your organizati knowledge base, in order to avoid duplication	2,4
CO-3	Candidates will be able to establish clearly the requirement the content of publications	1,5

Text Book:

1. "comdex – DTP course kit" Vikas Gupta, preamtech publishers – New Delhi 2008.

Reference Book:

1. Desktop Publishing and Design for Dummies by Roger C. Parker

PRACTICAL – III

DESK TOP PUBLISHING PACKAGE (DTP)

SEMESTER: IV **Credit : 2**
COURSE CODE: 18U4BXP03 **Hours/Week: 3**

Objectives:

To equip the students with practical skills to use desk top publishing Package

1. Table Creation,
2. Use and application of SELECT and INSERT statements.
3. Use of simple quires -
   i. Comparison operators (=, <, IN, NOT IN, ANY, BETWEEN, LIKE, IS, NULL, etc)
   ii.Logical operators (NOT, AND, OR)
   iii.Sorting
4. Single Row functions
   i. Character
   ii. Number
   iii. Data
   iv. Conversion
5. Group Functions
   i. Group by
   ii. Having Clause
6. Querying multiple tables
   i. Join, methods: Join, equip-join, outer-join
   ii. Set operations: Union, Union all, Intersection, Minus
7. Built- in functions of SQl
   i. Number function
   ii. Number group function
   iii. Count function
   iv. Character and data function
   7. Update operations using SQL

SBEC - II

Corporate Employability Skills

Semester- IV **Credit : 2**

Course Code: 18U4BXS02 **Hours/Week: 2**

Objectives:

To familiarize students with various communication methods that exists in business and to train them for smooth transition from campus to corporate

Unit-1

Effective Public Speaking – 3 V's- Verbal, Vocal And Visual – Star Strategy – 4 P's – Plan, Prepare, Practice and Perform.

Unit-II

Goal Setting and SWOT Analysis

Unit-III

Group Discussion – Assertiveness – interview techniques

Unit-IV

Etiquette – Dressing – Grooming Skills – E- Mail Etiquette.

Unit-V

Time Management and Team Skills.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students understood the concept of production management	3,6
CO-2	Gained knowledge on the importance of materials manageme	4,8
CO-3	Students understood the concept of inventory con techniques	4
CO-4	Knowledge acquired on Stock keeping and materials handling	2

Text Books:

1. Campus to Corporate ,Gangadhar Joshi,Sage Publications,2015.

2. Rajendra Pal & Korlahalli, Essentials of Business Communication, Sultan Chand & Sons, 2008

3. Campus to Corporate, Dr.S.S.Narula, Taxmann Allied Services Pvt Ltd,2012

NMEC - II

Human Resource Management

Semester- IV **Credit : 2**

Course Code: 18U4BXN02 **Hours/Week: 2**

Objectives:

- To introduce the students the basic concepts of HRM and to impart knowledge in Human Resource Planning and Development.

Unit – I

Introduction – Meaning and Definition, Nature, Scope, Objectives, Importance, and Functions of HRM.

Unit – II

Human Resource Planning – Nature, Importance and Objectives of Manpower Planning – Process of Manpower Planning – Uses and Benefit of Manpower Planning.

Unit – III

Recruitment and Selection – Sources of Recruitment Selection of Employee – Difference between recruitment and Selection.

Unit – IV

Procedures for selection-Tests-Interviews-Types of Interview-Process of conducting Interview-checking of References-Final Selection.

Unit – V

Training and Development – Importance of training employee – Types of training – Methods of training

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students learnt about remuneration and welfare measures	3
CO-2	Gained facts about labour relation and Industrial disputes	5
CO-3	Students learnt about human resource audit, nature approaches	7

Text book:

1. J. Jayasankar: Human Resource Management, Margham Publications Chennai (2011)

Reference books:

1. G.R. Bassotia: Human Resources Management, Mangal Deep Publications.
2. K.Aswathappa:Human Resources and Personnel Management,TMH Publications
   New Delhi (2011)
3. Kaushal Kumar:uman Resources Management – ABD Publishers.
4. Keith Davis:Human Relations at work, TMH. Publishers.
5. C.B. Mamoria,: Personnel Management, Himalaya publications house

Core Course-XIII

Cost Accounting

Semester- V **Credit : 4**

Course Code: 18U5BX11 **Hours/Week: 6**

Objectives:

- To enable the students to understand the principles and the procedure of applied costing.
- To help the students to apply it in a practical situation.

Unit-I

Cost Accounting: Definition – Objectives – Advantages – Limitations – Financial Accounting Vs Cost Accounting – Preparation of Cost sheet.

Unit-II

Materials: Stock levels – EOQ – Methods of Stock control – Pricing of Materials – FIFO, LIFO, Base stock, Simple average and Weighted average.

Unit-III

Labour: Methods of wage payments – Incentives plans - Halsey plan and Rowan plan-

Taylor's Differential Piece Rate System-Gantt's task and bonus plan

Unit-IV

Process costing: Process costing – Process normal loss, Accounts (Excluding Equalent production, By product and Joint – Product – Inter-process profits.)

Unit-V

Managerial costing: Break Even Analysis – Significance – Uses and Limitations – Decision making problem.

Note: Question in theory and problems, carry 30% and 70% of marks respectively.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Describe the concept of cost disadvantage	4,5
CO-2	Describe the concept of cost disadvantage	3
CO-3	Classify the methods of wage payments and incentive plans	2
CO-4	Describe the application of marginal costing	7,9

Text Book:

1. Jain S.P and Narang K.L: Cost Accounting, Kalyani Publications New Delhi(2003)

Reference Book:

1. Dr. Maheswari S.N :Principles of Cost Accounting, Sultan Chand & Sons New Delhi
2. Iyengar S.P :Cost Accounting, Sultan Chand & Sons Publications New Delhi(2004)
3. ReddyT.S.and Hari Prasadh: Cost Accounting, Margham publications Chennai (2002)

Core Course -XIV

Financial Management

Semester- V **Credit : 4**

Course Code: 18U5BX14 **Hours/Week: 5**

Objectives:

- To enable the students to learn fundamental aspects of financial management

Unit - I

Financial Management – Meaning – Definition – Objectives – Importance – Functions – Organization – Structure of Financial Management – Role of a Financial Manager.

Unit - II

Capital Budgeting – Ranking of Projects – Methods of Evaluating a Project Investment Proposal – Importance of Capital Budgeting (simple problems only).

Unit – III

Capital Structure Theories – Net Income Approach – Net Operating Income Approach – Modiglini Miller Approach – Factors Determining Capital Structure (theory only). Leverage – Meaning, Types – Importance and Significance of Leverages (Simple Problems only).

Unit- IV

Cost of Capital – Concept Cost of Capital – Determinants of Cost of Capital – Simple and Weighted average Cost of Capital (simple problems only).

Unit-V

Working Capital Management – Meaning – Importance – Types – Factors Determining Working Capital, Estimation of Working Capital (simple problems only).

Management of Cash, Inventory, Accounts Receivables and Accounts Payable (theory only).

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Gained knowledge on various source of finance	6,9
CO-2	Students understood the concept of cost of capital	2,5,6
CO-3	Gained knowledge on various dividend policies	9
CO-4	Acquired knowledge on working capital requirement & operating cycle	7,6

Text Book:

1. Dr. A.Murthy, Financial Management, Margham publication – Chennai (2016).

Reference Books

1. I.M. Pandey, Financial Management – Vikas.
2. Dr. S.N.Maheshwari , principles of Financial Management, Himalaya publishing House

Note :

Theory - **50%** of Marks, Problem - **50%** of Marks

Core Course-XV

Research Methods in Management

Semester- V **Credit : 4**

Course Code: 18U5BX15 **Hours/Week: 5**

Objectives:

- To introduce basic concepts and ideas to import knowledge on marketing research

Unit - I

Research- Meaning-Objective-Types- Significance of Research Process.

Unit - II

Sampling – Meaning – Sampling Design-Types- Probability- Non Probability - Sampling-Sampling Errors.

Unit – III

Data collection – Types of Data - Primary - Secondary – Data Collection Tools – Questionnaire – Schedule – Collection of Secondary Data. Scaling – Scale Classification.

Unit- IV

Data Preparation Process – Questionnaire Checking Editing – Coding – Classification – Tabulation. Hypothesis – Meaning – Null Hypothesis – Alternate Hypothesis.

Unit- V

Report writing – Significance – Steps – Layout – Types of Report – Mechanics of Writing a Research Report – Precautions.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Acquired knowledge in the need of Research, sampling, p testing	4
CO-2	Gained knowledge on various types of research and sampling techniques	4,6
CO-3	Acquired knowledge on the application of various statist tools	7
CO-4	Gained knowledge on the preparation of reports	2,3

Text book:

1. Sharma D.D: Marketing Research, Sultan Chand & Sons, Delhi, 2. C.R.Kothari: Research Methodology

Reference books:

1. P.Saravanavel: Marketing Research
2. C.R.Kothari: Marketing Research Methods & Techniques S. Chand & Sons Publishers.(2006)

Core Course-XIV

VISUAL BASIC

SEMESTER- V **Credit : 3**

COURSE CODE: 18U5BX14 **Hours/Week: 5**

Objectives:

- To make the students familiar with the use of visual basic and the various facets of Information Technology.

UNIT I

Getting Started -Visual Basic Environment -Initial VB Screen -Single Document Interface Tool Bars and System Control & Components -Use of File, Edit, View, Project, Foffi1at , Run and Debug, Tools, Window Menu, Properties Window, Procedures, Image Controls, Text Boxes, Labels, Navigating between Controls, Message Controls, Message Boxes and Grids.

UNIT II

Steps in Progran1ming -The Code Window -Editing Tools -Statements in VB -Assignment -and Property Setting -Variables, Numbers, Constants, DisplayingInfoffi1ation -Controlling Progran1 Flow -Repeating Operation -Making Decisions -GOTO -String Function -RND Functions -Data and Time Functions –Financial Functions.

UNIT III

Control Arrays -Lists: One Dimensional Arrays -Array with More than One Dimension -Using Lists Functions and Procedures -Passing by Reference / Passing by Values -Code Module -Global Procedure and Global Variables

UNIT IV

Fundan1entals of Graphics and Files -Screen -The Line and Shapes -Graphics Via Codes, Lines & Boxes, Circle, Ellipse, Pie Charts Curves, Paint Picture Method -Graph Control

UNIT V

Clip Board, DDE, Data Control -Programming with Data Control - Monitoring Changes to the Databases -DAO objects -Active X data objects

Textbook:

1. y Cornell -"Visual Basic 6.0 Progran1ming"- Tata McGraw Hill Edition.

Referenec Book:

1. Murach's Visual Basic 2010Author: Anne BoehmPublisher: Murach
2. Simply Visual Basic 2008Authors: Paul Deitel, H.M Deitel, and G. J. Ayer Publisher: Prentice Hall

PRACTICAL – IV

VISUAL BASIC

SEMESTER- V **Credit : 2**

COURSE CODE: 18U5BXP04 **Hours/Week: 3**

Objectives:

To equip the students with Practical skills to use Visual Basic.

1. Develop a simple calculator application
2. Prepare a payroll application
3. Students mark list preparation
4. Develop a Banking system with necessary reports.
5. Develop a sales and purchase order system with necessary report

ELECTIVES-I

(GROUP-A)

SERVICES MARKETING

SEMESTER- V **Credit : 3**

COURSE CODE:18U5BXE01 **Hours/Week: 4**

Objectives:

- To enable the students to understand the concepts of service marketing.
- To help the students to know the operation of service marketing

Unit-I

Importance of Services Sector – Nature and Types of Services-Difference Between Services and Goods Marketing-Services Marketing triangle.

Unit-II

Environment for Services Marketing - Micro and Macro Environments-Understanding Service customers- Models of Service Consumer Behaviour - Customer Expectations and Perception – Services Quality and Gap Model.

Unit-III

Market Segmentation and Selection –Service Market Segmentation - Targeting and Positioning.

Unit-IV

Services Marketing mix – Need for expanded marketing mix – Planning for Services offer – Pricing – Promotion and distribution of services – Management of People – Matching Demand for and supply of services.

Unit-V

Services marketing applications – Marketing of Financial, Tourism and Educational services.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students have gained knowledge on service sector and t services	3,5
CO-2	Students have acquired knowledge on marketing mix	7
CO-3	Students have gained knowledge on marketing of services	3,9

Text Books:

1. Rao:Services Marketing, Pearson Education, Publication. India
2. David Gilbert;Retail Marketing Management, Pearson Education-Publications. India

Reference Books:

1. Helen Woodruffe. : Service MarketingMacmillan. Publications.
2. HarshVerma: Service Marketing Global Business Press Publications..
3. Ravishankar:"Service Marketing- The Indian Experience, Manas. Publications.

ELECTIVES-I

(GROUP – B)

Business Practices

List of Exercises

SEMESTER- V **Credit : 3**

COURSE CODE: 18U5BXE02 **Hours/Week: 4**

Objective:

- To give Practical Knowledge about the various field of commerce.

Unit – I Business

1. Preparation of Invoice, Receipts, Voucher, Delivery Challan, Entry Pass, Gate Pass - Debit and Credit Notes.
2. Preparation of Transaction from the Receipts, Vouchers - Credit Notes and Debit Notes.
3. Preparation of Application for Shares and Allotment - Letter for Share – Transfer Forms.

Unit – II Banking

4.Drawing, Endorsing and Crossing of Cheques - Filling up of Pay in Slips – Demand Draft Application and Preparation of Demand Drafts.

5.Making Entries in the Pass Book and Filling up of Account Opening Forms for SB Account, Current Account and FDR's.

6.Drawing and Endorsing of Bills of Exchange and Promissory Notes.

7. National Electronic Funds Transfer (*NEFT*) - *Real Time Gross Settlement* Systems (*RTGS*) - Immediate Payment Service (*IMPS*)

Unit – III Co – Operative Societies

7.Filling up of Application Forms for Admission to Cooperative Societies. Filling up Loan Application Forms and Deposit Challan.

8.Filling up Jewel Loan Application Form, Procedure for Releasing of Jewellery in Jewel Loans and Repayment.

Unit – IV Secretarial practice and Stores control

9.Preparation of Agenda and Minutes of Meetings-both General Body and Board of Directors.

10.Using Bin Card and Inventories.

11.Using Cost Sheets.

Unit – V Insurance, Advertising and Income Tax

12.Filling up of an Application Form for LIC Policy, Filling up of the Premium Form - Sending Premium Notice and Filling up the Chelan for Remittance Receipt for the Premium. Procedure for Lapsed Policy and Procedure for Settling Account while the Insured is Alive or Dead.

13. Preparation of Audit Programmes.

14. Preparation of Audit Report and Replies to Audit Objections.

15. Preparation of an Advertisement Copy, Collection of Advertisement in Dailies and Journal, Critically Evaluating the Advertisement Copy.

16. Filing up e- Returns and Application for Permanent Account Number.

Note:

Students may be requested to collect original or Xerox copies of the documents and affix then on the record note book after having filled up. Drawing of the documents should not be insisted.

Distribution of marks: Practical 75% and Record Note Book 25%

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students know the preparation of receipts, bills, etc…	2,4
CO-2	Know the registrations of societies in india	6
CO-3	Students will be able to fill income tax forms	9

ELECTIVES-I

(GROUP – C)

INVESTMENT MANAGEMENT

SEMESTER- V **Credit : 3**

COURSE CODE: 18U5BXE03 **Hours/Week: 4**

Objectives:

To know the structure and functioning of investment management and financial service industry in India.

UNIT – I

Nature and scope of investment management - Meaning of investment – Factors favourable for investments – Features of an investmet programme structure of financial market : Financial institution – Commercial Bank.

UNIT – II

New issue and stock exchange – Bonus and right issue – Kinds of trading – Legal control of stock exchange of India – Capital issue control.

UNIT – III

Basic valuation – Models – Bonds, Preference share, equity share - Meaning of risk and return - Risk classification – Systematic and unsystematic measurement of risk

UNIT – IV

Investment classification – Feature of bonds – Types - Classification. - Convertible bonds, preference share, equity share, options, warrants, gift edged security – LIC – UTI, PE, NSS, NSC etc.,

UNIT – V

Computation of Tax liability – Exemptions – Deductions Financial statement analysis – Ratio portfolio analysis – Techniques.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	To understand the characteristics of different financial assets	3,6
CO-2	To understand the benefit of diversification	2,4
CO-3	To know how to apply different valuation models to evalu fixed income securities,	1,5

Text books:

1. Investment management – Preeti singh Himalaya publishing house.
2. Investment management – Bhalla.

Reference books:

1. Donald E. Fischer and Ronald J. Jordon – Security Analysis and Portfolio Management Practice Hall 1990.
2. Frank K. Reilly - Investment Analysis and Portfolio Management Dryden Press.
3. N.J. Yasamy - Equity investment strategy; Tata McGraw Hill Book Company,

ELECTIVES-I

(GROUP – D)

TOTAL QUALITY MANAGEMENT (TQM)

SEMESTER- V **Credit : 3**

COURSE CODE: 18U5BXE04 **Hours/Week: 4**

Objectives:

To enable the students to understand the Total Quality Management concept and principles.

UNIT - I

Concept of Quality – Quality as customer delight – Quality as meeting. Standards – Introduction to total Quality – Concept of total Quality – Design, inputs, process and output – Quality as business performance – Attitude and involvement of top management.

UNIT - II

Quality Management – Fundamentals – Evolution and objectives – Planning for Quality – Quality Process – Statistical Process Control (SPC) – Quality Assurance – Total Quality management.

UNIT – III

Quality Management System – ISO 9000 series – Techniques of TQM – 5 S Concepts – 7Q tools – Cause – Effect Analysis stratification, Paretodiagram. Histogram - Control charts - SQC - check sheet - Pie Chart - Scatter diagram (Theory Only)

UNIT- IV

Bench marking – Essence of Bench Marketing – Benefits and Strategic Bench marking – Global bench marking – Business Process Re-engineering.

UNIT - V

Core competence and strategic alliance for ensuring quality – Role of MNCS, in emergence of global quality – Barriers to TQM.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Understanding the basic concepts of TQM	3,6
CO-2	Understand Quality in Manufacturing, Service, Health care Education	2,4
CO-3	Focus on Customer satisfaction through defined qua processes.	1,5

Text books:

1. Armond V. Feigerbaum, - Total Quality Control McGraw Hill.
2. John Bark, - Essence of TQM, PHI, Delhi.

Reference books:

1. Joel, E. Ross, - Total Quality Management
2. Ron Collard, - Total Quality, Jaico, Delhi

Core Course-XVII

Strategic Management

Semester- VI **Credit : 4**

Course Code: 18U6BX17 **Hours/Week: 5**

Objectives:

- To familiarize the students with the basics of Strategic Management.
- To enable the students become socially conscious managers

Unit – I

An Overview of Strategic Management - Policy-Strategy – Tactics - Level of Strategy- Strategic Decision Making - Strategic Management - Process of Strategic Management- Strategists and their role in Strategic Management.

Unit – II

Strategy Formulation – Strategic Intent-Vision – Mission – Organizational Analysis -Organizational Capability Profile(OCP) – Strategic Advantage Profile(SAP)..

Unit – III

Strategy Alternatives: Corporate Level Strategies – Grand Strategies – Stability-Expansion – Retrenchment – Combination – Business Level Strategies – Porter's Generic Business Strategies.

Unit- IV

Strategy Analysis and Choice – Corporate Level Strategic Analysis – Boston Consulting Group(BCG)Matrix - General Electric (GE) Nine cell Matrix – SWOT Analysis – Business Level Strategic Analysis – Michael Porter's Five Force Model- SPACE.

Unit- V

Strategy Implementation and Evaluation - Project and Procedural Implementation -Resource Allocation - Structural- Behavioural - Functional and Operational Implementation-Strategic Evaluation and Control.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students learnt on political and legal issues in business	4
CO-2	Students have acquired knowledge on micro & macro econo concepts	7,9
CO-3	They gained knowledge on social beliefs, customs and cult heritage	1,3

Text book:

1. Azhar Kazmi:Business Policy and Strategic management – TataMcgrawHill New Delhi Publications (2007)

Reference books:

1. P. Subba Rao:Business Policy & Strategic Management.TMH
2. Francis Cherunilam:Business & Strategic Management (Text and Cases) – Himalaya.
3. Dr. S. Sankaran:Policy and Strategic management, Himalaya.
4. Fred R.David – Strategic Management Pearson Education

Core Course – XVIII

Production and Materials Management

Semester- VI **Credit : 4**

Course Code: 18U6BX18 **Hours/Week: 5**

Objectives:

- To introduce basic concepts and to impart knowledge on production and
  Materials management.

Unit- I

Production- Meaning-Types of Production-Production System-Continuous Production System-Intermittent Production System**.** Production Management -Definitions – Importance- Functions, Scope - Plant Location -Factors Affecting Plant Location.

Unit- II

Plant Layout - Principles –Types-Quality Control-Meaning-Objectives-Importance. Maintenance Management-Advantages-Types.

Unit-III

Materials management: Meaning-Objective-Purchasing-Procedure-Purchase Parameters –Vendor rating-Meaning.

Unit- IV

Store keeping - Objectives - Functions – Store Keeper - Duties - Responsibilities - Location of Store - Stores Ledger – Bin card-Materials Handling - Importance - Criteria for Selection of Material Handling Equipments.

Unit- V

Inventory control - Meaning and Importance - Tools of Inventory Control - ABC, VED, and FSN Analysis

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students understood the concept of production management	2,4
CO-2	Gained knowledge on the importance of materials manageme	4
CO-3	Students understood the concept of inventory con techniques	2,8
CO-4	Knowledge acquired on Stock keeping and materials handling	1,3

Text Books:

1. Saravanavel. P & Sumathi .S: Production & Material management, Margham Publications, Chennai (2011)

Reference books:

1. Varma.M.M: Materials Management, Sultan Chand & Sons Publications, New Delhi (2011)
2. Dutta : Integrated Materials Management, PHI
3. O.P. Kanna : Industrial Engineering & Management, Dhanpatrai Publication

Core Course-XIX

ADVERTISING AND SALESMANSHIP

SEMESTER- VI **Credit : 3**

COURSE CODE: 18U6BX19 **Hours/Week: 5**

Objectives:

To understand the fundamental concepts of advertising and salesmanship.

UNIT –I

Advertising – Role of advertising – Benefits of advertising – Ethical issues in advertising – Economic and social implications – Non Commercial advertising – Kinds of advertising.

UNIT – II

Advertising agency – Role and importance – Types of advertising agency – Functions of advertising agencies – Advertisement copy – Purpose – Characteristics – Steps involved in copy writing.

UNIT – III

Advertising media – Role of media – Factors to be considered in the selection of media – Various advertising media – Media research and advertising decision.

UNIT – IV

Personal selling – Components of personal selling - Personal selling process – Steps involved – Locating the potential buyers – Recruitment and selection of salesman – Sources of recruitment – Process of selecting salesman

UNIT- V

Salesmanship - Features – Objectives – Merits and demerits- Difference between salesmanship and advertising – Qualities of a good salesman.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	To Understand different types of advertising	3,6
CO-2	To Understand the activities in advertising agencies	2,4
CO-3	To know selling and salesmanship	1,5

Text Book:

1. Advertising and Salesmanship – P.Saravanavel & S. Sumath (Margham Publicatons, Chennai)

Reference Books:

1. Advertising management P. K. Agarwal
2. Theory and Practice of advertising Management Chunwala
3. Advertising management and Sales promotion

Core Course – XX

DATA BASE MANAGEMENT SYSTEM

SEMESTER- VI **Credit : 4**

COURSE CODE: 18U6BX20 **Hours/Week: 5**

Objectives:

- To know the students DBMS and its uses in the management
- To apply their DBMS knowledge in management

UNIT -I

Introduction: Database System Applications -Purpose of Database Systems -View of Data -Database Languages -Transaction Management - Database Architecture - Database users and Administrators. Relational Model: Structure of Relational Databases -Database Design -ER Model - Overview of the Design Process –The Entity -relationship Model -Constraints - Entity Relationship Diagrams.

UNIT -II

Relational Algebra Operations-SQL:: Background -Data Definition - Basic Structure of SQL Queries -Set Operations -Aggregate Functions -Null Values - Nested Sub- Queries -Views -Modification of the Database

UNIT-III

Other relational languages: The Tuple-Relational calculus-The Domain rational Calculus Query by example. Integrity and security: Domain Constraints-Referential integrity- assertions-Tigers-Security and authorization-Authorization in SQL-Encryption and authentication.

UNIT IV

Relational Database Design: First Normal form –Pitfalls in relational database design Functional Dependencies – Decomposition-Desirable properties of Decomposition –Boyce code Normal Forms(BCNF) –Third National Form-Fourth National Form.

UNIT –V

Date Base system Architectures; Centralized and client-Sever Architectures-Server system Architectures-Parallel system –Distributed system-Network types. Distributed database; Homogeneous and heterogeneous database- Distributed Date Storage- Distributed transactions – commit protocols - Availability –Heterogeneous Distribute Databases- Directory system.

Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	To understand the file structure and its organization.	3,6
CO-2	An introduction about Database management system	2,4
CO-3	Helps student to learn different types of data models	1,5

Textbooks:

1. "Database System Concepts, Abraham Silber schatz, Henry F .Korth, Sudarshan TMH 5th Edition (Units -I, II)

Reference Book:

1. Database Systems Using Oracle -Nilesh Shah, 2nd edition, Prentice, Hall of India Private Limited, New Delhi.

Elective-II

(Group – A)

Retail Management

Semester- VI **Credit : 4**

Course Code: 18U6BXE05 **Hours/Week: 5**

Objectives:

- To enable the students to understand the concepts of retail management.
- To help the students to know the operation of retailing.

Unit-I

Definition of Retailing Marketing – Features of modern Retail Marketing – Importance of Retail Marketing – Types of Retail Marketing - Retail marketing Mix.

Unit-II

Franchising – Definition – Advantages – Hyper market – Difference between Super market and hyper market – International retailing – Factors involved in international retailing.

Unit-III

Introduction – Service is marketing - Nature and Types of services – Services Vs Goods marketing – Service marketing triangle – Environment of services marketing – Models of service – Consumer behavior – Service quality and GAP model.

Unit-IV

Services marketing mix – Need for expanded marketing mix – Planning for Services offer – Pricing – Promotion and distribution of services – Management of People – Matching Demand for and supply of services.

Unit-V

Services marketing applications – Marketing of Financial, Hospitality, Tourism and Educational services – International marketing of services and GATTs.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Acquired knowledge on sales promotion techniques, channel budgeting	4
CO-2	Students have gained knowledge on marketing of services	3
CO-3	Students gained knowledge on advertising and sales promotio	8

Text Books:

1. Rao:Services Marketing, Pearson Publications. India
2. David Gilbert; Retail Marketing Management, Pearson Education-Publications. India

Reference Books:

1. Helen Woodruffe. : Service MarketingMacmillan. Publications.
2. HarshVerma: Service Marketing Global Business Press Publications..3.

Ravishankar:"Service Marketing- The Indian Experience, Manas. Publications.

Elective-II

(Group – B)

Entrepreneurship Development

Semester- VI **Credit : 4**

Course Code: 18U6BXE06 **Hours/Week: 5**

Objectives:

- To enable the students to develop and strengthen the entrepreneurship quality and acquire the skills to run small scale industry.

Unit-I

Entrepreneurship Concepts, Types and Functions of Entrepreneurs – Entrepreneurial Development in India – Role of Entrepreneurs in Economic Development – Entrepreneurial Development Programme – Phases of Entrepreneurial Development Programme – Influence of Environment Factor in Training and Development of entrepreneurs.

Unit-II

Project Development – Business Ideas-Project identification and Formulation –Classification of Project Feasibility studies –Project Appraisal Methods –Project Design, Network analysis -Financial analysis.

Unit-III

Financing Entrepreneurs – Institutional finance to entrepreneurs – Role of IFC, IDBI, ICICI, IRCI, SIDB, LIC, SFC, TIIC and Commercial Banks in Financing Entrepreneurs.

Unit-IV

Promoting Enterprises – SSI – MSME – Role and Growth of SSI – Regulations governing SSI – Incentive and Concessions for SSI units – sickness in SSI – Causes and Remedies.

Unit-V

Institutions and development of entrepreneurs – Role of DIC, SISI, SIDCO, NSIC, MAYE, KVIC, TCO'S, ITCOT and Entrepreneurial Guidance Bureau – Incentives and Subsides to Entrepreneurs – Problems and Prospects of Entrepreneurs – Developing Women and Rural Entrepreneurs – Entrepreneurs Motivation.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Students understand clearly about the Entrepreneurship	1,5
CO-2	Know the various institute that helping in entrepreneurship	3
CO-3	Gained knowledge about various Institutional finance entrepreneurs	5
CO-4	Know the role of DIC, SISI, SIDCO, NSIC, MAYE, KVIC, TC etc.	6,9

Text Book:

1. Gupta, C.B. and Srinivasan N.P., Entrepreneurical Development

Reference Books

1. Khanha, Entrepreneurial Development
2. Vasanth Desai, Organization and Management of small Industries
3. Saravanavel, P., Entrepreneurship Development
4. Tandon, B.C., Environment and Entrepreneurship

Elective-II

(Group – C)

Insurance and Risk Management

Semester- VI **Credit : 4**

Course Code: 18U6BXE07 **Hours/Week: 5**

Objectives:

- To minimize threats and enhance opportunities.
- To Identify, evaluate, mitigate and control risks.

Unit I

Definition of Insurance – Insurable risk – Principles of insurance – Kinds of insurance – Costs and benefits of insurance – Pooling in insurance – Factors that limit the insurability of risk – Reinsurance.

Unit – II

Insurance business in India – Framework of insurance business – privatization of insurance business – Insurance Regulatory and Development Authority (IRDA) – Govt. Policy on insurance sector.

Unit – III

Understanding Risk: Types of risk – Risk management - Objectives - Risk identification and measurement - Pooling arrangements and diversification of risk.

Unit – IV

Risk aversion and demand for insurance – By individuals- By corporations- Insurability of risk- contractual provisions- Legal doctrine- - Loss control – Risk retention and reduction decisions.

Unit – V

Analytical tools used in corporate risk management -– products liability – Environmental liability – Directors and Officers liability-Issues in liability risk and management.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Understand the concept of insurance in everyday life of people	2,5
CO-2	History and procedures of taking the insurance and its benef	1,8.9
CO-3	Aware of risk factors and its obligations, etc.	3

Text Book:

1. George E. Rejda: Principles of Risk Management & Insurance, Pearson: New Delhi.

References:

1. Harrington. Niehaus: Risk Management & Insurance, McGraw Hill: New York.
2. P.K. Gupta: Insurance & Risk Management, Himalaya Publishing House: Mumbai.
3. Insurance Institute of India – IC 86 – Risk Management

Elective-II

(Group – D)

Logistics and Supply Chain Management

Semester- VI **Credit : 4**

Course Code: 18U6BXE08 **Hours/Week: 5**

Objectives:

- To introduce basic ideas and to impart knowledge on logistics and supply chain management.

Unit - I

Logistics Design – Logistics Management – Definition – Meaning – Types – Transportation – Inventory – Warehousing – Material Handling and Packaging – Organizational Structures.

Unit - II

Logistics Network – Logistics Resources – Principles of Logistics Information – Application of Information Technologies – Barcode – Scanning.

Unit - III

Logistics Demand – Forecasting – The Nature of Demand – Forecast Components – Forecast Techniques – Forecast Error - Logistics Location Structure.

Unit - IV

Supply Chain Management Models – Definition – Objectives – Applications – Types – Conceptual Models – Key issues in supply chain management.

Unit - V

Supply Chain Management Strategy – Inventory Management – Push and Pull Systems – Demand and Cash flow in supply chain management – Enterprise Resource Planning (ERP) – Supply chain management matrix.

Note: Theories and concepts only.

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSOs addresse
CO-1	Knowledge on concepts of logistics management & phys distribution	3,6
CO-2	Gained knowledge on inventory control techniques and st keeping	2
CO-3	Students learnt supply chain management needs and metho	7
CO-4	Acquired knowledge on Supply Chain Performance Drivers	2,9

Text books:

1. Donald Bolversox and Daavis J. Closs:Logistics Management – The integrated supplychain process Tata McGraw Hill,(2006.)

2. David Simchi – Levi and Philip Kaminsky and Edith Simchi – levi-Designing and Managing the supply chain concepts, strategies and case 2nd Edition, Tata McGraw Hill, (2006)

Reference books:

1. Rahul,V.Altekar:Supply chain Management, Concepts& Cases, PHILearning, (2006)

2. Ailawadi, Rakesh Singh: Logistics Management", PHI Learning (2006)

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Business Administration
Bachelor of Business Administration with Computer Application

Project Work

Semester- VI **Credit : 2**

Course Code: 18U6BAPR01 **Hours/Week: 3**

Objectives:

- To equip the students project with practical skills to use the project work

(Project Work Guidelines Specimen – I)

A Study on Effectiveness of Training Among 'E' Level Employees of Watch Division in Titan Industries Limited, Hosur.

A Project Report submitted to the Periyar University in partial fulfillment of the requirements for the award of the Degree of

Bachelor of Business Administration

By

(Name of the Student)

Reg. No.....

Under the guidance of

(Name of the Guide
Designation, Department, College)
College emblem

(Department, College Name and Place
Month and Year of Submission)

Selvamm Arts & Science College (Autonomous) Namakkal
Department of Business Administration
Bachelor of Business Administration with Computer Application

(Project Work Guidelines Specimen – II)

Certificate

This is to certify that the project entitled **"A Study on Effectiveness of Training among 'E' level Employees of Watch division in Titan Industries Limited, Hosur"** is a bonafide work carried out by..... Register No ..... under my supervision and guidance during the academic year ..... in partial fulfillment of the requirements for the award of the **Degree of Bachelor of Business Administration** and the work is an original one and has not formed basis for the award of any degree, diploma, associateship, fellowship or any other similar title.

(HOD Signature) **(Guide Signature)**

Project Work evaluation viva – voce examination conduced on .....

Internal Examiner **External Examiner**

(Project Work Guidelines Specimen – III)

Declaration

I hereby declare that this Project work entitled **"A Study On Effectiveness Of Training Among "E" Level Employees Of Watch Division In Titan Industries Limited, Hosur"** submitted to the PERIYAR UNIVERSITY, SALEM in partial fulfillment of the requirements for the Award of the Degree of **Bachelor of Business Administration** is an original one and has not been submitted earlier either to this University or to any other Institution for the award of any Degree / Diploma.

Date :

Place : **(Candidate Signature)**

Selvamm Arts and Science College (Autonomous), Namakkal
Department of Commerce
B.Com

Selvamm Arts & Science College
(AUTONOMOUS)
Nationally Re-Accredited at the Highest Grade "A" by NAAC
UGC Recognized 2(f) and 12(B) Institution
Affiliated to Periyar University, Salem-11
Namakkal - 637003.

BACHELOR OF COMMERCE (B.Com.)
Choice Based Credit System (CBCS)
Regulations and Syllabus
(With Effect from 2018-2019)

Bachelor of Commerce (B.Com)
Regulations and Syllabus
Choice Based Credit System (CBCS)
(With effect from 2018-2019)

Vision:

Providing value based, society oriented Principles and practice of commerce and management which produce leaders competitive scholars talented students globally.

Mission:

Organizing industrial visits, projects to help the students apply the principles and concepts learnt in the classroom. Developing leadership and employability skills among the students. Exposing the students to get global business and professional practices. Sensitizing on the need of value based life and social responsibilities. Embedding global strategy in the courses taught in the program caring for the creation and to become eco-friendly.

Programme Outcomes (UG)

PO 1: Communicate Effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.

PO 2: **Environment Concern** - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

Selvamm Arts and Science College (Autonomous), Namakkal
Department of Commerce
B.Com

B.COM. – Programme
Hour and Credit Allocation

Part	Course	Course Code	Name of the Course	Hours/ Week	Credits
			Semester - I		
I	1	18U1FTA01	Foundation Tamil - I	5	4
II	1	18U1FEN01	Foundation English - I	5	4
III			**Core:**		
	1	18U1CM01	financial Accounting - I	6	4
	2	18U1CM02	business Communication	6	4
			Allied:		
	1	18U1ECA01	Business Economics	6	4
IV	1	18U1VE01	Value Education: Yoga and Practices	2	1
TOTAL				**30**	**21**
			Semester – II		
I	2	18U2FTA02	Foundation Tamil - II	5	4
II	2	18U2FEN02	Foundation English - II	5	4
III			**Core:**		
	3	18U2CM03	Financial Accounting - II	6	4
	4	18U2CM04	Principles of Management	6	4
			Allied:		
	2	18U2ECA02	Indian Economic Development	6	4
IV	2	18U2ES01	Environmental Studies	1	1
	3	18U2VE02	Values for Life	1	1
TOTAL				**30**	**22**
III			**Semester – III**		
			Core:		
	5	18U3CM05	Business Law	5	4
	6	18U3CM06	Corporate Accounting – I	6	4
	7	18U3CM07	Banking Theory, Law and Practice	5	4
	8	18U3CM08	Principles of Marketing	5	4
			Allied:		

	3	18U3STA05	Business Statistics	5	4
			Skill Based Elective Course:		
IV	1	18U3CMS01	Financial Services	2	2
			Non Major Elective Course:		
	1	18U3CMN01	Banking Practices	2	2
TOTAL				**30**	**24**
			Semester – IV		
III			**Core:**		
	9	18U4CM09	Company Law and Secretarial Practice	5	4
	10	18U4CM10	Corporate Accounting – II	6	4
	11	18U4CM11	Business Environment	5	4
	12	18U4CM12	International Trade Practices	5	4
			Allied:		
	4	18U4STA04	Fundamentals of Operations Research	5	4
IV			**Skill Based Elective Course:**		
	2	18U4CMS02	Stock Market Practices	2	2
			Non major Elective Course:		
	2	18U4CMN02	Organization and Management of Micro Small and Rural Enterprises	2	2
TOTAL				**30**	**24**
III			**Semester – V**		
			Core:		
	13	18U5CM13	Cost Accounting	5	4
	14	18U5CM14	Auditing	4	4
	15	18U5CM15	Income Tax Law and Practice – I	5	4
	16	18U5CM16	Human Resources Management	5	4
	17	18U5CM17	Tally	3	2
	1	18U5CMP01	Tally Practical	3	2
			Elective Paper – I		
			(To choose any one out of two)		

	1		Office Organization (18U5CME01) (or) Fundamentals of insurance (18U5CME03)	5	4
TOTAL				**30**	**24**
III			**Semester –VI**		
			Core:		
	18	18U6CM18	Management Accounting	5	4
	19	18U6CM19	Entrepreneurship Development	4	4
	20	18U6CM20	Income Tax Law and Practice –II	5	4
	21	18U6CM21	Financial Management	5	4
	2	18U6CMP02	Commerce Practical	4	2
			Elective Paper – II		
	2		(To choose any one out of two) E- Commerce (18U6CME02) (or) Principles and Practice of Co-operation (18U6CME04)	5	4
IV	1	18U6STE01	Skills Through English (LSRW)	2	1
V	1	18U6EX01	Extension Activities*	-	2
Total				**30**	**25**
Over All Credits				**180**	**140**

***Note: Extension Activities 80 Hours (Semester II, III, IV and V) per semester 20 hours to outside the class hours.**
***Note: Skills Through English (LSRW) 120 Hour (Sem I, II, III, IV, V and VI) Per Semester 20 Hours to inside the class hours.**

B.COM. – Programme
Scheme of Examination

Part	Course	Name of the Course	Duration (Hours)	External Marks	Internal Marks	Total Marks
		Semester - I				
I	1	Tamil – I	3	75	25	100
II	1	English – I	3	75	25	100
III		**Core:**				
	1	Principles of Accountancy	3	75	25	100
	2	Business Communication	3	75	25	100
		Allied:				
	1	Business Economics	3	75	25	100
IV B		**Non - Major**				
	1	Value Education: Yoga and Practices	3	75	25	100
		Semester – II				
I	2	Tamil – II	3	75	25	100
II	2	English - II	3	75	25	100
III		**Core:**				
	3	Financial Accounting	3	75	25	100
	4	Principles of Management	3	75	25	100
		Allied:				
	2	Indian Economic Development	3	75	25	100
IV B	2	Environmental Studies	3	75	25	100
	3	Values for Life	3	75	25	100
		Semester – III				
III		**Core:**				
	5	Business Law	3	75		100
	6	Corporate Accounting – I	3	75	25	100
	7	Banking Theory, Law And Practice	3	75	25	100

	8	Principles of Marketing	3	75	25	100
		Allied:				
	3	Business Statistics	3	75	25	100
IV A		**Skill Based Elective Course:**				
	1	Financial Services	3	75	25	100
		Non Major Elective Course				
	1	Banking Practices	3	75	25	100
III		**Semester – IV**				
		Core:				
	9	Company Law And Secretarial Practice	3	75	25	100
	10	Corporate Accounting – II	3	75	25	100
	11	Business Environment	3	75	25	100
	12	International Trade Practices	3	75	25	100
		Allied:				
	4	Fundamentals of Operations Research	3	75	25	100
IV A		**Skill Based Elective Course:**				
	2	Stock Market Practices	3	75	25	100
		Non Major				
	2	Organization and Management of Micro Small and Rural Enterprises	3	75	25	100
III		**Semester – V**				
		Core:				
	13	Cost Accounting	3	75	25	100

	14	Auditing	3	75	25	100
	15	Income Tax Law and Practice – I	3	75	25	100
	16	Human Resources Management	3	75	25	100
	17	Tally	3	75	25	100
	1	Tally Practical	3	75	25	100
	1	**Elective Paper – I**	3	75	25	100
III		**Semester –VI**				
		Core:				
	18	Management Accounting	3	75	25	100
	19	Entrepreneurship Development	3	75	25	100
	20	Income Tax Law and Practice –II	3	75	25	100
	21	Financial Management	3	75	25	100
	2	Commerce Practical	3	75	25	100
	2	**Elective Paper – II**	3	75	25	100
IV	1	Skills Through English (LSRW)	3	75	25	100
V	1	Extension Activities (ERP)	-	-	-	-

Program Specific Outcome (PSO)

PSO – 1: Students will be able to demonstrate progressive learning of various tax issues and tax forms related to individuals. Students will be able to demonstrate knowledge in setting up a computerized set of accounting books

PSO – 2: Students will demonstrate progressive affective domain development of values, the role of accounting in society and business.

PSO – 3: Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PSO – 4: Students will learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PSO – 5: Leaners will gain thorough systematic and subject skills within various disciplines of commerce, business, accounting, economics, finance, auditing and marketing.

PSO – 6: Learners will be able to recognize features and roles of businessmen, entrepreneur, managers, consultant, which will help learners to possess knowledge and other soft skills and to react aptly when confronted with critical decision making.

PSO–7: Learners will be able to prove proficiency with the ability to engage in competitive exams like CA, CS, ICWA and other courses.

PSO – 8: Leaners will acquire the skills like effective communication, decision making, problem solving in day to day business affairs and to again accounting knowledge.

PSO – 9: Learners will involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure.

PSO – 10: Learners can also acquire practical skills to work as tax consultant, audit assistant and other financial supporting services.

PSO -11: Learners will be able to do higher education and advance research in the field of commerce and finance.

PSO -12: Understanding about companies Act, Banking Regulation Act, Negotiable instrument Act, functions, borrowings and lending.

Bachelor of Commerce (B.Com.)

Choice Based Credit System (CBCS)

(With effect from 2018-2019

Semester - I

Part – III Hours/week: 6

Core Course – I Credits: 4

Course Code: 18U1CM01

Financial Accounting - I

Objective: To make the students to gain basic accounting knowledge with reference to accounting.

Unit – I Introduction to Accounting (18 hours)

Introduction – Concepts – Conventions – Equations – Trade Discount and Cash discount – Journal – ledger – classifications – Trial Balance – Errors – Suspense Accounts – Bank Reconciliation Statement. (Theory Only)

Unit – II Financial Statements (16 hours)

Financial Statement and Nature – Matching Principle – Capital and revenue expenditure – Profit and Loss Account – Provision for Bad debts, discounts (Theory Only)

Unit – III Depreciation Accounts (15 hours)

Depreciation – Accounting Standards – Promissory Note and Bill of Exchange – Entries on Receipts of bills. (Problems Only)

Unit – IV Final Accounts (15 hours)

Final Accounts – Joint venture – Account Current and Average Due Date .(Problems Only)

Unit – V Branch and Departmental Accounting (16 hours)

Branch and Departmental Accounting – Hire Purchase and Installment System. (Problems Only)

Note: The questions will be asked from Problems at 60% and Theory at 40% .

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Described various accounting concepts, ledger account using double Entry book keeping, trail Balance and Bank Reconciliation Statement.	5
CO-II	Preparing financial statements in accordance with appropriate standards.	3
CO-III	Acquired knowledge on various types of depreciation and kinds of bills preparation	7
CO-VI	Understands on how to deal with adjustments in final accounts and to knowing average due date.	3
CO-V	Preparation of branch and Departmental Accounting	7

Text book:

1.T.S. Reddy and A.Murthy, (2011), Financial Accounting, Margham Publications, Chennai-17.

2.M.C.Shukla. T.S. Grewal, Advanced Accountancy, S.Chand and Company Ltd. New Delhi.

3.S.N.Maheswari , Advanced Accountancy, Vikas Publishing House Pvt.Ltd,New Delhi.

Reference Books:

1. Dr.S.Ganesan and Kalavathi, (2011), Financial Accounting, Tirumalai Publications, Nagarkovil.

2. R.L.Gupta and V.K.Gupta, (2008), Financial Accounting, Sultan Chand & Sons, New Delhi.

3. S.P.Jain and K.L.Narang, (2006), Financial Accounting, Kalyani Publishers, Ludhiana.

Semester – I

Part – III Hours/Week: 6

Core Course – II Credits: 4

Course Code: 18U1CM02

Business Communication

Objective: To give the students communicating and corresponding skills in business.

Unit – I Introduction to Communication and Business Letter (13 hours)

Communication – Concept – Need and importance - Objectives – Types - Special Features - Media – Barriers - Functions of Business Letter – Essentials – Layout of Business Letter.

Unit – II Types of Business Letters (13 hours)

Letters of Enquiry – Replies, Offer and Quotations – Orders – Execution – Cancellation – Credit and Status Enquires – Circular Letters – Sales Letters – Complaint Letters.

Unit – III Institutional Correspondence (12 hours)

Bank Correspondence – Insurance Correspondence – Agency Correspondence – E- Correspondence through Electronic Mode.

Unit – IV Corporate Correspondence and Report Writing (13 hours)

Company Correspondence – Agenda – Minutes – Resolutions – Reports.

Unit – V Application for Jobs (14 hours)

Application for jobs – Resume – Interviews – Preparation for Interview – Group discussion – Soft Skills – Social Networking - Features.

Co.No	**Upon completion of this course , students will be able to**	**PSO addressed**
CO-I	Described about principles of effective communication	8
CO-II	Classifying the different kinds of business letters and its purpose.	8

CO-III	Acquired knowledge about requirement of different types of correspondence and how to write the letter.	5
CO-VI	Analyses and preparation of Corporate Correspondence and Report Writing.	5
CO-V	Described different forms of Application for Jobs.	6

Text book:

1.Rajendera Pal and J. S. Korla Halli, (2006), Business Communication, Sultan Chand &Sons, New Delhi.

2. Pooja Khanna, (2016), Effective Business Communication, Vikas Publishing House Pvt. Ltd. New Delhi.

3.Ramesh and Pattanchetti, (2006), Business Communication, S.Chand &Co, New Delhi.

Reference Books:

1.N.S.Ragunathan, (2003), Business Communication, Margham Publications, Chennai-17.

2. R.S.N.Pillai and Bagavathi, (2006), Commercial Correspondence, S.Chand & Co, New Delhi.

3. S.K.Mandal, (2007), Effective communication and Public Speaking, Jaico Books Publishing House, Delhi.

Semester - I

Part – III Hours/week: 6

Allied Course – I Credits: 4

Course Code: 18U1ECA01

Business Economics

Objective: To understand the basic concepts and principles of business economics.

Unit – I Introduction to Business Economics (17 hours)

Nature and Scope of Economy – Meaning of Business Economics - Objectives and Scope of Business Economics – Role and Responsibilities of a Business Economist.

Unit – II Law of Demand (18 hours)

Meaning of law of Demand – Exceptions Changes in Demand – Demand Determinants – Importance – Elasticity of Demand – Type Measurement – Its Importance – Demand Forecasting.

Unit- III Supply and Equilibrium (16 hours)

Meaning of Production and Productivity – Production Function – Factors of Production - Short Run and Long Run – Economies of Scale – Supply – Determinants – Equilibrium.

Unit – IV Cost and Revenue (17 hours)

Cost Concepts – Kinds of Cost – Cost and Output Relationship - Opportunity Cost – Imported Cost – Revenue – Total Revenue – Average Revenue – Marginal Revenue -Curves under Perfect & Imperfect Competition – Break Even Analysis.

Unit – V Marketing Competition (17 hours)

Market Structure - Selling Cost – Pricing under Perfect Competition – Price Discrimination - Monopoly – Monopolistic Competition – Oligopoly.

Co.No	**Upon completion of this course , students will be able to**	**PSO addressed**
CO-I	To understand Introduction to Business Economics.	5
CO-II	Knowledge on Supply and Equilibrium	6

CO-III	To know about Supply and Equilibrium.	9
CO-VI	To Realize Cost and Revenue	5
CO-V	To know about Marketing Competition	4

Text Book:

1.S.Sankaran, (2010), Business Economics, Margham Publications, Chennai.

2.P.N.Chopra, (2002), Business Economics Kalyani Publisher New Delhi.

3. S.Sankaran, (2015), Micro Economics, Margham Publications, Chennai

Reference Books:

1. K.P.M.Sundharam, E.N.Sundharam, (2004), Business Economics, Sultan Chand & Sons, New Delhi.

2. Drivedi D.N, (2002), Managerial Economics, Vikas Publishing House (Pvt) Ltd, New Delhi.

3.Amit Kumar Upadhyay, Principles of Econmics, , Vikas Publishing House (Pvt) Ltd, New Delhi.

Semester - II

Part – III Hours/week: 6

Core Course – III Credits: 4

Course Code: 18U2CM03

Financial Accounting - II

Objective: To gain knowledge of accounting in general and to understand the system financial Accounts.

Unit- I Ledger Accounts (18 hours)

Self Balancing Ledger Vs Sectional Ledger – Reserves and Provisions. (Theory Only)

Unit-II Non – Trading Concern (16 hours)

Receipts and Payment Accounts – Income and expenditure account and Balance sheet System – Single entry and Double entry System. (Theory Only)

Unit-III Single Entry system (16 hours)

Single Entry system - Receipts and payment Accounts – Income and Expenditure Account – Branch Accounts. (Problems Only)

Unit-IV Partnership Accounts (15 hours)

Partnership Accounting – Admission – Retirement – Death – Insolvency of One Partner and All Partners. (Problems Only)

Unit-V Inflation Accounting (15 hours)

Inflation, HR and Social Responsible Accounting. (Problems Only)

Note: The questions will be asked from problem at 60% and Theory at 40%.

Text book:

Co.No	**Upon completion of this course , students will be able to**	**PSO addressed**
CO-I	Acquired knowledge about Ledger Accounts	1
CO-II	Preparation of accounting books for non- profit organization.	2
CO-III	Computing the accounting treatment during conversion of single entry to double entry system.	4

CO-VI	Described about Partnership Accounts	3
CO-V	Preparation of Inflation Accounting	4

Text book:

1.T.S. Reddy and A.Murthy, (2011), Financial Accounting, Margham Publications, Chennai-17.

2.M.C.Shukla. T.S. Grewal, Advanced Accountancy, S.Chand and Company Ltd. New Delhi.

3.S.N.Maheswari , Advanced Accountancy, Vikas Publishing House Pvt.Ltd,New Delhi.

Reference Books:

1. Dr.S.Ganesan and Kalavathi, (2011), Financial Accounting, Tirumalai Publications, Nagarkovil.

2. R.L.Gupta and V.K.Gupta, (2008), Financial Accounting, Sultan Chand & Sons, New Delhi.

3. S.P.Jain and K.L.Narang, (2006), Financial Accounting, Kalyani Publishers, Ludhiana.

Semester - II

Part – III Hours/week: 6

Core Course – IV Credits: 4

Course Code: 18U2CM04

Principles of Management

Objective: To make the students, to gain the knowledge in principles and functions of management.

Unit- I Introduction to Management (17 hours)

Meaning – Definition – Concept – Objectives - Nature and Scope of Management – Functions of Management – Scientific Management – Principles of Management Contribution by F.W. Taylor and Henry Fayol.

Unit- II Planning and Decision-making (16 hours)

Planning - Meaning, Nature and Importance of Planning – Steps in Planning – Forecasting – Decision Making Process – Types of Decisions.

Unit- III Organizing and Staffing (15 hours)

Organizing – Natures – Structure - Departmentalization – Principles of Organization - Line - Staff Conflict - Delegation of Authority – Decentralization – Effective Organization – Organizational Charts – Informal Organization – Staffing – Meaning – Definition – Concept – Objectives – Functions – Selection – Recruitments.

Unit- IV Co-ordination and Control (16 hours)

Meaning and Definition of Co-ordination – Concept – Importance - Principles of Co -ordination - Control – Steps in Control – Essentials of Effective Control – Reporting –Budgeting.

Unit- V Leadership and Motivation (16 hours)

Leadership – Meaning – Definition – Objectives – Types - Styles – Motivation - Meaning – Definition – Objectives – Need and Importance – Merits and Demerits - Maslow's need Hierarchy and McGregor Theories of Motivation.

Co.No	**Upon completion of this course , students will be able to**	**PSO addressed**
CO-I	Describe about concepts of scientific	5

	management.	
CO-II	To understand about Planning and Decision-making.	6
CO-III	Acquired knowledge about organizing structure and selection of staffing.	11
CO-IV	To realize Co-ordination and Control of organization.	8
CO-V	To understand about leadership styles and motivation Theories.	6

Text Books:

1.Dinkar Pagare,(2000), Business Management, Sultan Chand & Sons, New Delhi.

2.L.M.Prasad,(2000), Principles of Management, Margham Publications, Chennai.

3.Dr.C.D.Balaji (2015) , Principles of Management, Margham Publications, Chennai.

Reference Books:

1. S.A.Sherleker and V.S.Sherleker, (1979), Principles of Business Management, Himalaya publications, Mumbai.

2.Dr.C.B.Gupta, (1997), Business Management, Sultan Chand & Sons, New Delhi.

3. P.C.Tripathi & P.N.Reddy (2001) , Principles of Management, Tata Mc Graw – Hill Publishing Co.Ltd. New Delhi.

Semester - II

Part – III Hours/week: 6

Allied Course – II Credits: 4

Course Code: 18U2ECA02

Indian Economic Development

Objectives: To enable the students to understand the salient features of India and its occupational structure; To assess the relative share of agriculture, industry and service sector in the economy and to analyze the fruits of planning.

Unit- I Introduction to Indian Economy (16 hours)

Meaning – Features of Indian Economy - Concept of Growth and Development - Characteristics and Causes –Determinants of Economic Development – Economic and Non Economic Factors – Barriers of Economic Development.

Unit- II National Income (17 hours)

Human Resources – Population Growth as a Retarding Factor – Population Policy – Indian National Income – Concept – Its Measurement – Limitations – Recent Trends in National Income – Poverty in India – Rural and Urban Poverty – Causes – Unemployment – Occupational Structure.

Unit – III Agricultural Sector (15 hours)

Agriculture – Features – Role of Agriculture – Agricultural Productivity and Reforms – Food Problem – Green Revolution – Causes – Problems of Agricultural Production in India.

Unit – IV Industrial Sector (16 hours)

Industrialization in India – Role of Industries in Economic Development – MSME - Industrial Sickness – Industrial Labour Organization – Industrial Relation – Industrial Development - New Industrial Policy – Problems of Industrial Sectors.

Unit – V Services Sectors (16 hours)

Information Technology – Information Technology enabled Services (ITES) – BPO –Types of BPO – Call Centre Services – On Site - Off Site Services.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understanding the Introduction to Indian Economy	5
CO-II	To knowing Human Resources	6
CO-III	Described about Agriculture.	1
CO-IV	To realize kinds Industrialization in India	6
CO-V	Identification Services Sectors	8

Text Book:

1.I.C.Dhingra, (2000), Indian economy, Sultan Chand & Sons, New Delhi

2.S.Sankaran, (2017), Indian Economy, Margham publiccations, Chennai.

3.Ruddar Datt KPM , Sundharam,(2007), Indian Economy, S,Chand &Company Ltd, New Delhi.

Reference Books:

1.S.K.Misra, V.K.Puri, (2000), Indian Economy, Himalaya Publishing House, Mumbai.

2.Francis Cherunilam, (1988), International Economics, Tata McGraw Hill Pvt. Ltd., New Delhi.

3.B.Ramaraj(1990),Indian Economy, Vishal Publications, Madras.

Semester - III

Part – III Hours/week: 5

Core Course – V Credits: 4

Course Code: 18U3CM05/18U3CC05

Business Law

Objective

To gain a comprehensive knowledge on all aspects of Legal Rules as to Contracts and Sale of Goods.

Unit – I Introduction to Business Law and Elements of Contract (14 hours)

Introduction – Definition and Scope of Business Law - Source of Business law – Nature and Kinds of Contract – Elements of a Valid Contract – Offer and Acceptance – Consideration – Essentials and Legal Rules for a Valid Consideration.

Unit – II Performance of Contract (12 hours)

Contingent Contract and Quasi Contract – Performance of a Contract – Discharge of a Contract – Remedies for Breach of Contract.

Unit – III Indemnity and Guarantee (13 hours)

Contract of Indemnity and Guarantee – Elements – Rights - Distinction - Discharge of Surety from Liability - Bailment and Pledge – Elements –Rights and Duties – Distinction.

Unit – IV Contract of Agency (13 hours)

Agency – Creation of Agency – Kinds of Agent – Rights and Duties of Principal and Agent – Relationship between Principal and Third Parties – Termination of Agency.

Unit – V Contract of Sale of Goods (13 Hours)

Sale of Goods – Sale and Agreement to Sell – Condition and Warranties – Transfer of Property – Transfer of Title – Performance - Remedies for Breach – Unpaid Seller - Rights of Unpaid Seller – Auction Sale – Rules Relating to Delivery of Goods.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understanding the Business Law and Elements of Contract.	5
CO-II	To knowing legal rules regarding contract.	9
CO-III	Described about Indemnity and Guarantee.	5
CO-IV	To realize kinds and Termination of Agency in contract.	10
CO-V	Identification of rules and regulation of sale of goods.	9

Text Books:

1. N.D.Kapoor, (2013), Business Law, Sultan Chand & Sons, New Delhi.
2. R.S.N.Pillai and Bagavathi, (2015), Business Law, S.Chand & Co., New Delhi.

Reference books:

1. M.C.Shukla, (2010), Commercial Law, S.Chand & Sons, New Delhi.
2. M.C.Kuchhal, (2015), Business Law, Vikas Publishing House Pvt Ltd, New Delhi.
3. P.C.Tulsian, (2011), Business Law, the McGraw Hill Companies, New Delhi.

Semester-III

Part – III Hours/week: 6

Core Course – VI Credits: 4

Course Code: 18U3CM06 / 18U3CC06

Corporate Accounting – I

Objective

To make the students to gain Accounting knowledge in company accounts.

Unit – I Issue of Equity Shares (17 hours)

Shares – Meaning – Definition – Kinds – Issue Procedures – Methods – At Par, at Premium and at Discount – under subscription – over subscription – Forfeiture and Re-issue.

Unit – II Issue of Preference Shares (15 hours)

Preference Shares – Meaning – Types – Provisions for Redemption of Preference Shares – Methods of Redemption.

Unit – III Issue of Debentures (15 hours)

Debentures – Meaning – Classifications – Issue and Redemption of Debentures – Various Methods of Redemption.

Unit – IV Valuation of Goodwill and Shares (16 hours)

Valuation of Goodwill and Shares – Need – Methods - Profits Prior to Incorporation.

Unit – V Final Accounts of Companies (17 hours)

Preparation of Final Accounts of Companies – Managerial Remuneration.

Note: Theory 20% and Problems 80%

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Enable the student understand about Issue of Equity Shares.	6
CO-II	Understanding about Issue of Preference Shares.	6
CO-III	Enable the student understand Issue of Debentures.	4

CO-IV	To Know about Valuation of Goodwill and Shares.	4
CO-V	To give exposure to the company final account.	3

Text book:

1. Reddy & Murthy, Corporate Accounting, Margham Publications, Chennai.

Reference books:

1. R.L. Guptha and Radhaswamy, Advanced accountancy - Sulthan Chand & Sons, New Delhi.

2. S.P.Jain & K.L.Narang, Corporate Accounting, Kalyani Publishers, New Delhi.

2. S.N.Maheswari, Corporate Accounting, Vikas Publishing House, New Delhi.

3. Shukla, M.C.Grewal, T.S. Gupta, Advanced Accounts, S.Chand & Co.Ltd, New Delhi.

Semester-III

Part – III Hours/week: 5

Core Course - VII Credits: 4

Course Code: 18U3CM07

Banking Theory, Law and Practice

Objective: To gain knowledge of the Law and Practice of Banking.

Unit- I Introduction to Banking (13 hours)

Banking Regulation Act, 1949 Definition of Banking, Licensing, Opening of Branches, Functions of Banks, Inspection – Role of RBI and Its functions.

Unit – II Commercial Banks and its Functions (14 hours)

Commercial Banks – Functions – Recent Development in Banking Sector -E-Banking – ATM Cards - Personal Identification Number – Online Enquiry and Update Facility – Electronic Fund Transfer – Electronic Clearing System – Payment Banking.

Unit – III Types of Deposits Account (13 hours)

Opening of An Account- Types of Deposit Account – Types of Customers (Individuals, Firms, Trusts, and Companies) – Importance of Customer Relations – Customer Grievances and Redressal – Ombudsman.

Unit – IV Borrowings and Lending Principles (12 hours)

Principles of Lending – Types of Borrowings – Precautions to be taken by a Banker.

Unit – V Negotiable Instruments Act (13 hours)

Promissory Note – Bills of Exchange, Cheque, Draft – Definitions, Features – Crossing – Endorsement – Material Alteration – Paying Banker – Rights and Duties – Statutory Protection – Dishonour of Cheques – Role of Collecting Banker.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understand about Banking Regulation Act, 1949.	5
CO-II	Comprehend the knowledge about functions of commercial banks.	12

CO-III	Grasp about types of banking products.	5
CO-IV	To know about Borrowings and Lending Principles.	12
CO-V	Described about Negotiable Instruments	12

Text book:

1. B. Santhanam, (2008), Banking Theory, Law and Practice, Margham Publishers, Chennai-17.

Reference books:

1. K.M.Sundaram and E.N.Sudha, (2008) Modern Banking, Sultan Chand & Sons,
New Delhi.
2. Dr. S.Gurusamy, (2008), Banking Theory and Law Practice, Tata McGraw Hill Pvt
Ltd, New Delhi.
3. S.N.Mageshwari, (2000), Banking Theory Law and Practice, Kalyani Publications.

Semester-III

Part – III Hours/week: 5

Core Course - VIII Credits: 4

Course Code: 18U3CM08

Principles of Marketing

Objectives: To offer knowledge and expertise in the marketing functions of business. To provide exposure on marketing practices of business firms.

Unit - I Introduction to Marketing (13 hours)

Marketing – Meaning – Definition - Functions of Marketing – Role and Importance of Marketing – Classification of Markets and Its Significance of Markets.

Unit - II Market Segmentation (12 hours)

Market Segmentation – Concept – Benefits – Basis and Levels - Introduction to Consumer Behaviour – Need and Importance – Consumer Buying Decision Process – Buying Motives.

Unit – III Traditional and Modern Products (14 hours)

Marketing Mix - Product – Meaning – Introduction to Stages of New Product Development – Types – Introduction to PLC – Product Mix – Price – Pricing Policies and Methods.

Unit - IV Channels of Distribution (13 hours)

Channels of Distribution (Levels) – Channel Members – Promotion – Communication Mix – Basics of Advertising and evaluation, Sales promotion and personal selling.

Unit – V Recent Trends in Marketing (13 hours)

Recent Trends in Marketing - E – Marketing – Online Marketing – Types of e- Marketing – Merits of e-Marketing –Demerits of e-Marketing.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understanding the functions and types of marketing.	5

CO-II	Knowledge on segmentation of market and consumer behavior.	6
CO-III	Analyses of marketing mix and pricing strategies.	5
CO-IV	Classification of channels of distribution and promotional activities.	5
CO-V	To know about online marketing methods.	11

Text Books:

1. Phillip Kotler, Principles of Marketing, Prentice-Hall India Pvt. Ltd, New Delhi.

Reference Books:

1. Sherlerkar, Marketing Management, Himalaya Publishing House Pvt. Ltd, Mumbai.
2. C.B. Gupta & Rajan Nair, Marketing Management, Sultan Chand & Sons, New Delhi.
3. Dhruv Grewal and Michael Levy, Marketing Management, Mc Graw Hill Education India Private Ltd, New Delhi.
4. Rajan Saxena, Marketing Management, Mc Graw Hill, Noida,U.P.

Semester-III

Part – III Hours/week: 5

Allied Course – III Credits: 4

Course Code: 18U3STA05

Business Statistics

Objective: To understand and apply statistical tools in business

Unit – I Measures of Central Tendency (15 hours)

Introduction – Collection and Tabulation of Statistical Data – Frequency Distribution – Measures of Central Tendency – Mean, Median, Mode, Harmonic Mean and Geometric Mean, Combined Mean.

Unit – II Measures of Dispersion (13 hours)

Measures of Dispersion – Range – Quartile Deviation – Mean Deviation – Standard Deviation and their Co-efficient - Measure of Skewness – Karl Pearson and Bowley's Co-efficient.

Unit – III Correlation (13 hours)

Correlation – Types of Correlation – Measures of Correlation – Karl Pearson's Co-efficient of Correlation – Spearman Rank Correlations Co-efficient - Simple Regression Analysis – Regression Equation, Fitting of Regression Lines – Relationship Between Regression Co-efficient and Correlation Co-efficient.

Unit – IV Index Number (12 hours)

Index Number, Definition of Index Numbers, Uses Problems in the Constructions of Index Numbers - Simple and Weighted Index Numbers - Chain and Fixed Base Index – Cost of living Index Numbers.

Unit – V Time Series Analysis (12 hours)

Analysis of Time Series – Definition – Components of Time Series, Uses, Measures of Secular Trend, Measure of Seasonal Variation - Method of Simple Average.

Note: The question may be asked from Problem at 80% and Theory at 20% in each unit.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understanding the Measures of Central Tendency	11
CO-II	Knowledge on Measures of Dispersion	7
CO-III	To know about Correlation	2
CO-IV	Realize Leasing Index Number	1
CO-V	To know about Analysis of Time Series	9

Text Book:

1. P.A.Navanitham,(2007), Business Statistics, Jai Publishers Trichy-21.

Reference books:

1. S.P.Guptha,(2000), Business Statistics, Sultan Chand and Sons, New Delhi.

2.R.S.N. Pillai and Bagavathi, (2006),Statistics, S.Chand & Co Ltd, New Delhi

3. P.R. Vittal, (1995), Business Mathematics, Margham Publication Chennai – 17.

4. S.Kalavathy (2006) Operating Research, Vikas Publishing House, New Delhi.

Semester - III

Part – IV A Hours/week: 2

SBE Course – I Credits: 2

Skill Based Elective Course – I

Course Code: 18U3CMS01

Financial Services

Objective: To Understand the Indian Financial System.

Unit-I Introduction to Financial Service (4 hours)

Indian Financial Services – Introduction – Concept – Objectives.

Unit-II Merchant Banking and its Functions (4 hours)

Merchant Banking – Definition – Objective - Scope – Functions.

Unit-III Factoring in India (4 hours)

Factoring –Concept - Significance - Types of Factoring – Factoring in India.

Unit – IV Leasing Finance (4 hours)

Lease Financing – Definition – Types – Merits and Demerits – Hire Purchase and Leasing Financing – Leasing in India.

Unit-V Credit Rating Agencies (4 hours)

Credit Rating – Meaning – Definition - Credit Rating Agencies – Functions – Benefits.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understanding the Indian Financial Services.	5
CO-II	Knowledge on Merchant Banking and its Functions.	12
CO-III	To know about Factoring in India.	12
CO-IV	Realize Leasing Finance and hire purchase.	3
CO-V	To know about Credit Rating Agencies.	4

Text book:

1. E.Gordan & K.Natarajan,(2006),Financial Marketing and Services, Himalaya Publishing House Mumbai.

Reference books:

1.B.Santhanam,(2008),Financial Services, Margham, Publication, Chennai – 17.

2.P.N. Varshney & D.K. Mittal (2005), Indian Financial System, Sultan Chand & Sons New Delhi.

Semester - IV

Part – III Hours/week: 5

Core Course - IX Credits: 4

Course Code: 18U4CM09 / 18U4CC08

Company Law and Secretarial Practice

Objective

To gain knowledge about company law and secretarial practices.

Unit – I Introduction to Company (13 hours)

Meaning – Definition – Features – Kinds - Important highlights of Companies Act, 2013 – Promoters – Functions – Duties of Promoters - Incorporation – Procedures – Duties of Secretary regarding incorporation of a company.

Unit – II Formation of a Company (14 hours)

Memorandum of Association (MoA) - Meaning – Purpose - Contents – Alteration of Memorandum – Doctrine of Ultravires - Articles of Association (AoA) – Meaning – Purpose - Contents – Alteration of Article – Relationship between Articles and Memorandum - Procedures to be followed by the secretary.

Unit – III Prospectus and Underwriting (13 hours)

Prospectus – Definition - Contents – Statement in Lieu of Prospectus – Consequences of Misstatements in a Prospectus – Duties of Secretary – Underwriting Commission and Brokerage – Difference between Underwriter and Brokers.

Unit – IV Managerial Persons and Meetings (13 hours)

Directors and Secretary – Qualification and Disqualification – Appointment – Removal - Powers, Duties and Liabilities of Directors and Secretary - Meetings – Kinds of company Meetings – Agenda – Minutes – Resolutions - Duties of Secretary regarding Meetings.

Unit – V Winding Up of a Company (12 hours)

Winding up – Meaning – Modes of winding up – Compulsory winding up by the court – Voluntary winding up – types of Voluntary winding up – Members voluntary winding up – Creditors voluntary winding up – winding up subject to supervision of the court -

Consequences of winding up (General) – Latest Amendments as per companies Act 2013 & 2015.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Realize Importance highlights of Companies Act, 2013.	12
CO-II	Formation of a Company.	7
CO-III	Described Prospectus and Underwriting	9
CO-IV	To Understand Managerial Persons and Meetings	8
CO-V	To Understand Winding Up of a Company	6

Text book:

1. N.D. Kapoor (2015), Company Law and Secretarial Practice, Sultan Chand & Sons, New Delhi.

Reference books:

1. P.P.S. Gogna, (2016),Company Law, S.Chand & Co Ltd, New Delhi.
2. M.C.Shukla (2010), Mercantile Law, S.Chand & Co Ltd, New Delhi.
3. M.C.Kuchhal (2006), Secretarial Practice, Vikas Publications
4. J. Santhi (2015), Secretarial Practice. Margham Publications, Chennai.

Semester - IV

Part – III Hours/Week: 6

Core Course - X Credits: 4

Course Code: 18U4CM10 / 18U4CC09

Corporate Accounting – II

Objective

To gain Accounting knowledge in Amalgamation , Banking, Insurance, Holding Companies.

Unit – I Amalgamation Absorption and External Reconstruction (18 hours)

Amalgamation as per AS-14 – Meaning – Definition – Purchase Consideration - Methods – Accounting for Amalgamation and Absorption and External Reconstruction.

Unit – II Alteration of Share Capital (16 hours)

Alteration of Share Capital- Meaning - Different ways of alteration share capital - Internal Reconstruction - Liquidator's Final Statement of Accounts.

Unit – III Bank Accounts (New Format) (16 hours)

Accounts of Banking Companies – Profit and Loss Account (Form – B, Schedule – III) – Balance Sheet (Form – A , Schedule – III)

Unit – IV Insurance Accounts (New Format) (15 hours)

Insurance – Meaning – Types – Final Accounts of Life Insurance Companies – Revenue Account and Balance sheet.

Unit – V Holding Company Accounts (15 hours)

Accounts of Holding Companies – Meaning - Capital profit – Revenue profit – Calculation of Minority Interest – Cost of control or Goodwill – Preparation of Consolidated Balance sheet (Excluding Inter-Company Holdings).

Note: Theory 20% and Problems 80%

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Labeled amalgamation as per AS-14.	8
CO-II	Preparing Alteration of Share Capital.	6
CO-III	Acquired knowledge on Accounts of Banking Companies.	12
CO-IV	Understands methods of insurance	3
CO-V	Preparation of Holding Company.	2

Text book:

1. Reddy & Murthy, Corporate Accounting, Margham Publications, Chennai.

Reference books:

1. R.L. Guptha and Radhaswamy, Advanced accountancy - Sulthan Chand & Sons, New Delhi.

2. S.P.Jain & K.L.Narang, Corporate Accounting, Kalyani Publishers, New Delhi.

2. S.N.Maheswari, Corporate Accounting, Vikas Publishing House, New Delhi.

3. Shukla, M.C.Grewal, T.S. Gupta, Advanced Accounts, S.Chand & Co.Ltd, New Delhi.

Semester - IV

Part – III Hours/week: 6

Core Course – XI Credits: 4

Course Code: 18U4CM11

Business Environment

Objective: To Make the students to know about the changes in Socio – cultural, Economic and Geographic Dynamics.

Unit – I Introduction to Business (17 hours)

Introduction to Business – Nature and Changing Concept of Business – Objectives of Business – Corporate Governance and Social Responsibilities of Business – Indian Business Environment; Components and Importance.

Unit – II NITI Aayog (18 hours)

Niti Aayog - Meaning – Concept - Application – Significance and features-Achievements - Success and failure of Five years plans.

Unit – III Globalization (17 hours)

The Meaning and Rationale for Globalization – Strategies – Advantages of Globalization – Make in India Programme - Factors determining in business environment.

Unit – IV Sectoral Policy (17 hours)

Sectoral Development of the Economy and Role of the Government - Agricultural and Industrial Policy - Export – Import Policy, Regulations of Foreign Investment.

Unit – V Public Enterprises (16 hours)

Public Enterprises in India – Small Scale Industries – Problems and Prospectus of Public Enterprises – Role of Government Policy.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understand about Indian Business Environment.	8
CO-II	Introduction about NITI Aayog **.**	5

CO-III	Understand the concepts of Globalization .	7
CO-IV	To know different kinds of sectoral Policy.	10
CO-V	Understand about Public Enterprises in India.	6

Text book:

1. Dr.S.Sankaran,(2005), Business Environment, Margham Publications, Chennai.

Reference books:

1. Ruddar Datt & K.P.M. Sundharam,(2000), Indian Economy, S.Chand & Company Limited, New Delhi.

2. S.K.Misra & V.K. Puri, (2005), Indian Economy, Himalaya Publishing House, Mumbai.

3. K. Aswathappa,(2005), Essentials of Business Environment, Himalaya Publishing House, Mumbai.

Semester – IV

Part – III Hours/Week: 5

Core Course - XII Credits: 4

Course Code: 18U4CM12

International Trade Practices

Objective: To Provide basic knowledge on International trade.

Unit – I Introduction to International Trade (13 hours)

International Trade - Meaning – Importance – Objectives – Modes of International Business – Advantages – Disadvantages.

Unit – II Balance of Payment (13 hours)

Introduction – Meaning - Balance of Payment(BoP) – Structure of BoP – Balance of Trade and Balance of Payment - Current Account – Capital Account - Concepts – Equilibrium - Causes of Disequilibrium – Exchange Control – Objectives – Techniques – methods.

Unit-III Export Management (12 hours)

Export Management – Procedure and Documents – Export Promotion – Export Finance and pricing.

Unit-IV International Financial Institutions (14 hours)

International Economic Organizations - Objectives and Functions - International Monetary Fund (IMF) - International Finance Corporation (IFC) - International Bank for Reconstruction Development (IBRD) – World Bank - Asian Development bank (ADB).

Unit – V World Trade Organization (WTO) (13 hours)

Introduction – Objectives and functions - WTO and Trade Liberalization – Liberalization effects on Manufacturing and Agricultural Sectors .

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understanding the International Trade.	6
CO-II	Knowledge on Balance of Payment.	3
CO-III	To know about Export Management.	6
CO-IV	To Comprehend Leasing Functions of	5

	International Economic.	
CO-V	To know about World Trade Organization.	5

Text Book:

1. D.M. Mithani, (2009), Money, Banking, International Trade and Public Finance, Himalaya Publishing House, New Delhi.

Reference book:

1.Francis Cherunilam (2009), International Trade and Export Management, Himalaya Publishing House, New Delhi.

Semester - IV

Part – III Hours/week: 5

Allied Course – IV Credits: 4

Course Code: 18U4STA04

Fundamentals of Operations Research

Objectives: To understand and apply statistical tools in business.

Unit – I Introduction to Matrix (13 hours)

Matrix: Definitions – Operations on Matrix – Determinant of Matrix - Inverse of a Matrix (Adjoint Method Only) – Application: Solving of Linear Equations – Matrix Inverse Method; Crammers Method.

Unit – II Sequence and Series (12 hours)

Sequence and Series – Arithmetic Progression and Geometric Progression - Interpolation : Bionomial Expansion Method - Newton's Forward and Backward Method - Largrange's Method.

Unit – III Probability (13 hours)

Probability - Definition – Addition and Multiplication Theorems – Conditional Probability – (Simple Problems Only).

Unit – IV LPP and Simplex (14 hours)

Linear Programming – Formulation of LPP, Solutions of LPP – Advantages and Limitation of LPP – Graphical Methods - Simplex Method.

Unit – V Transportation Problem (13 hours)

Transportation Problem – North West Corner Rule – Matrix Minima (or) Least Cost Method – Vogel's Approximation Method – MODI Method - Assignment Problem – Balanced – Unbalanced (Hungurian) Assignment Method.

Note: Questions may be asked from Problem at 80% and Theory at 20% in each unit.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understanding Introduction to Matrix	3
CO-II	Knowledge Sequence and Series	7

CO-III	To know about Linear Programming	9
CO-IV	To Comprehend Probability	6
CO-V	To know about Transportation Problem	7

Text Book:

1. P.A.Navanitham, Business Statistics, Jai Publishers Trichy-21

Reference books:

1. S.P.Guptha, Business Statistics, Sultan Chand and Sons, New Delhi.

2.R.S.N. Pillai and Bagavathi, Statistics, S.Chand & Co Ltd, New Delhi

3. P.R. Vittal, Business Mathematics, Margham Publication Chennai – 17.

4. S.Kalavathy, Operating Research , Vikas Publishing House, New Delhi.

Semester - IV

Part – IV A Hours/week: 2

SBE Course – II Credits: 2

Skill Based Elective Course – II

Course Code: 18U4CMS02

Stock Market Practices

Objectives: 1. To expose the constituents of the securities market to the students, 2. To provide a comprehensive understanding of stock market operations in India

Unit – 1: Primary Market (2 Hours)

Primary Market - Meaning, Functions, Intermediaries - Role of Primary Market – New Issues Market – IPO's – Investor protection in primary market – Recent trends in primary market – SEBI measures for primary market - Current status of Indian securities market.

Unit – II: Secondary Market (2 Hours)

Meaning, Nature, Functions of Secondary Market – Organization and Regulatory framework for stock exchanges in India – Defects in working of Indian stock exchanges – secondary market intermediaries - stock brokers, advisors - regulations and code of conduct framed by SEBI- Dematerialization

Unit – III: Listing of Securities (2 Hours)

Meaning – Merits and Demerits – Listing requirements, procedure, fee – Listing of rights issue, bonus issue, further issue – Listing conditions of BSE and NSE – Delisting.

Unit – IV: Stock Exchanges (2 Hours)

BSE, NSE & MCX – Different trading systems – Different types of settlements - Pay-in and Pay-out – Bad Delivery – Short delivery – Auction – Market types, Order types and books – De-mat settlement – Physical settlement – Practical sessions on stock market operations

Unit V: Risk Management Systems (2 Hours)

Risk management system in BSE & NSE – Margins – Exposure limits – Surveillance system in – Circuit breakers - Inside Trading, Circular Trading, Price Rigging – market indices

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understanding the Capital Market and importance.	8
CO-II	To Knowledge on Primary Stock Market	7
CO-III	To know about Secondary Stock Market.	7
CO-IV	Gather SEBI & Its Procedures.	5
CO-V	To know about Role and kinds of Brokers.	12

Text Book:

1.Punithavathy Pandian, Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd.

Reference Books:

1. Avadhani, Investment and Securities Market in India, Himalaya Publishing House.
2. Prasanna Chandra, Security Analysis and Portfolio Management, Tata McGraw-Hill.
3. Sanjeev Agarwal, A Guide to Indian Capital Market, Bharat Publishers.

Semester - IV

Part – IV A Hours/week: 2

NME Course – II Credits: 2

Non Major Elective Course – II

Course Code: 18U4CMN02

Organization and Management of Micro Small and Rural Enterprises

Objective: To make the students to know the role of entrepreneurs in Small Scale Industries.

Unit – I Introduction to MSMEs (4 hours)

Meaning – Definition - Classifications – Objectives - Role of MSMEs.

Unit – II Organization of MSMEs (4 hours)

Form of Organizations - MSMEs – Village Industries – Cottage Industries – Capital Requirements - Promotion Mechanism – RBI Guidelines.

Unit – III Incentives and Subsidies (4 hours)

Meaning – Need for Incentives – Central Government Schemes – Foreign Direct Investment in MSMEs.

Unit – IV Financial Institutions (4 hours)

Small Industrial Development Organizations (SIDOs) - Small Industry Service Institutes (SISIs) – Small Industries Development Bank of India (SIDBI) – Commercial Banks.

Unit – V Remedies to Sickness (4 hours)

Meaning – Definition – Classification of sickness – Symptoms of Sickness – Causes of Sickness – Remedial Measures.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	To understand about Basic principles of MSMEs.	6
CO-II	Knowledge on Organization of MSMEs.	6
CO-III	To know about Incentives and Subsidies in MSMEs.	8
CO-IV	To Realize Financial Institutions particularly in	6

	Small Industrial Development Organizations.	
CO-V	To know about Remedies to Sickness.	8

Text Book:

1. Renu Arora and S.K. Sood, Fundamentals of Entrepreneurship and Small Business, Kalyani Publishers,New Delhi.

Reference Book:

1. S.Sankaran, Indian Economy, Margham Publications Chennai- 17.

Semester - V

Part – III Hours/week: 5

Core Course – XIII Credits: 4

Paper Code: 18U5CM13

Cost Accounting

Objective: To make the students to gain accounting knowledge in management Concerns.

Unit – I Introduction to Cost Accounting (14 hours)

Cost Accounting – Meaning, Scope, Objectives – Cost Concepts and Classification - Advantages and Limitations – Difference Between Cost Accounting and Financial Accounting – Elements of Cost – Preparation of Cost Sheet.

Unit – II Material Management (12 hours)

Material Management – Purchase Procedure – Various Stock Levels – Economic Order Quantity – Bin Card and Stores Ledger – Pricing of Issues – FIFO, LIFO, Simple Average and Weighted Average Methods.

Unit – III Computation of Labour Cost (13 hours)

Labour Cost – Importance – Various Methods of Labour Cost Control – Methods of Wage Payment – Various Incentive Schemes – Labour Turnover.

Unit – IV Apportionment of Overheads (13 hours)

Overheads – Classification – Apportionment of Overheads – Redistribution of Overheads – Absorption of Overheads – Calculation of Machine Hour Rate.

Unit – V Job Costing and Process Costing (13 hours)

Methods: Job Costing - Contract Costing - Process Costing – Normal Loss - Abnormal Loss and Abnormal Gain – Joint Product and By Products.

Note: The question may be asked from Problem at 80% and Theory at 20% in each unit.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Acquired knowledge about Introduction of Cost Accounting.	4
CO-II	Preparation of Material Management.	7
CO-III	Computing the Labor Costing.	10
CO-IV	Described about Apportionment of Overheads.	2
CO-V	Preparation of Job Costing and Process Costing.	6

Text book:

1. T.S Reddy & Hari Prasad Reddy,(2010),Cost Accounting, Margham Publications, Chennai-17.

Reference books:

1. A.Murthy & S.Gurusamy, (2010), Cost Accounting Tata McGraw Hills New Delhi.

2. R.S.N Pillai & Bagavathi,(2005),Cost Accounting, Sultan Chand & Sons, New Delhi.

3.S.P Jain & Narang, (2010),Cost Acounting - Kalyani Publishers, Ludhiana.

Semester - V

Part – III Hours/week: 4

Core Course – XIV Credits: 4

Paper Code: 18U5CM14

Auditing

Objective: To make the students to know the role of Auditor in Company and his Qualifications.

Unit – I introduction to Auditing (10 hours)

Introduction – Meaning and Objectives of Audit – Difference Between Auditing and Accountancy –Audit Note Book - Kinds of Audit – Advantages and Limitations of Audit – Audit Programmers and Working Papers.

Unit – II Internal Control (10 hours)

Internal Control – Meaning and Object – Internal Check – Meaning and Object – Internal Control Regarding Cash Purchases, Sales, Payment of Wages.

Unit – III Verification of Voucher (10 hours)

Vouching – Meaning – Objects – Features of Good Voucher – Procedure and Importance –Vouching of Cash Transactions – Verification of Assets and Liabilities.

Unit – IV Qualification of Auditors (10 hours)

Auditor – Qualification, Functions - Appointment, Disqualification, Removal, Duties, Power, Liabilities and Remuneration - Audit of Share Capital - Share Transfer.

Unit – V Specialized Audit (10 hours)

Specialized Audits - Charitable Institutions, Club, Cinema Theatre, Educational Institutions, Hospital, Hotel.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Described about principles of Auditing and Methods.	7
CO-II	To Know about Internal Control and internal	5

	Audit System.	
CO-III	Analyses and preparation of Voucher.	10
CO-IV	Acquired knowledge about Different Kinds of Qualification having Auditors.	11
CO-V	Described Specialized Audit.	7

Text book:

1. S.Sundharsanam, (2005), Practical Auditing S.Chand & Co Pvt Ltd. New Delhi.

Reference books:

1. Dinker Pagare,(2006),Auditing, Sultan Chand & Sons, New Delhi.
2. B.N. Tandon, (2000), Principles of Auditing, S.Chand & Co New Delhi.
3. Batlibai,(2000), Principles of Auditing, S.Chand & Co, New Delhi.

Semester - V

Part – III Hours/week: 5

Core Course – XV Credits: 4

Paper Code: 18U5CM15

Income Tax – Law and Practice – I

Objectives: To help the students understand and apply concepts and provisions of Income Tax Act,1961.

Unit – I Introduction to Income Tax (13 hours)

Introduction to Income Tax Act,1961 – Meaning – Objectives – Assessee – Person – Previous Year – Assessment Year – Income – Casual Income – Gross Total Income – Total Income.

Unit – II Total Income and Exempted Income (13 hours)

Basis of Charge – Scope of Total Income – Residence and Tax Liability – Incomes which do not Form Part of Total Income.

Unit – III Computation of Salary Income (14 hours)

Heads of Income – Income Under Salaries – Definition, Features – Computation of Salary Income – PF – Allowances – Perquisites – Other Items Included in Salary – Deduction Under Salary – Tax – Rebate, Relief of Income Tax.

Unit – IV Computation of House Property Income (12 hours)

Income from House Property – Definition – Basis of Charge – Exempted HP Incomes – Computation of Income from HP – Gross Annual Value – Net Annual Value – Deductions – Let Out and Self – Occupied Houses.

Unit – V Computation of Business and Professional Income (13 hours)

Definition of Business and Profession - Profits and Gains Business and Profession — Income Chargeable under Profits and Gains – Deductions – Specific Allowances – Deemed Profit – Computation of Business Income and Professional Income – Depreciation.

Note: The Questions may be asked from the Problems at 80% and Theory at 20% in each unit.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Acquired knowledge about Introduction to Income Tax.	1
CO-II	Preparation of Total Income and Exempted Income.	9
CO-III	Computing the Computation of Salary Income.	7
CO-IV	To prepare and understand about House Property Income .	5
CO-V	Preparation of Business and Professional Income	10

Text books:

1.V.P.Gaur & Narang, (2019),Income Tax Law and Practice - Kalyani Publishers, Ludhiana.

2. T.S.Reddy & Hari Prasad Reddy, (2019), Income Tax Theory, Law & Practice, Margham Publications, Chennai – 17.

Reference books:

1. A.Jayakumar & N. Hariharan (2019), Income Tax Law and Practice, Vijay Nicole Imprints (P)Ltd. Chennai.

2. Dinkar Pagare, (2019), Income Tax Law and Practice, Sultan Chand & Sons, New Delhi.

Semester - V

Part – III Hours/week: 5

Core Course – XVI Credits: 4

Paper Code: 18U5CM16

Human Resources Management

Objectives: To understand and the nature of human resources and its significance to the organization and to learn about the various mechanisms in HRM.

Unit - I Introduction to HRM (13 hours)

Meaning – Definition – Nature – Importance of Human Resources Management – Objectives of HRM - Differences between Personnel Management and HRM – Environment of HRM – Human resource planning.

Unit - II Recruitment and Selection (14 hours)

Recruitment - Meaning – Sources of recruitment – Factors Determining in Recruitment - Selection – Methods of Selection – Tests – Types of tests – interview - types of interview - techniques in selection and placement.

Unit - III Training and Performance Appraisal (13 hours)

Training Meaning – Definition – Importance – Methods of Training – Performance appraisal – Meaning – Methods – Promotion – Need for promotion – Criteria for promotion - Transfer – Need – Demotion – Suspension – Dismissal of services.

Unit - IV Motivation (13 hours)

Motivation – Meaning and Definition – Nature – Characteristics – importance – Process of Motivation – Financial and Non Financial Incentives – Theories of Motivation – Maslow's Need Hierarchy Theory – McGregor's X and Y Theory – McClelland's Need theory.

Unit - V Labour Relation (12 hours)

Labour Relation – Functions of Trade Unions – Forms of collective bargaining-Workers' participation in management – Types and effectiveness – Industrial Disputes and Settlements (laws excluded) Human Resource Audit – Nature – Benefits – Scope – Approaches.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	To understand Introduction to HRM.	6
CO-II	To Know about Recruitment and Selection of person	10
CO-III	To know about Training and Performance Appraisal.	9
CO-IV	To Realize Importance of Motivation and Theories.	4
CO-V	To know about Functions and Relation of labour	3

Text Book:

1. L.M. Prasad, (2010) Human Resource Management, Sultan & Chand, New Delhi.

Reference Books:

1. Jayasankaran.J, (2009), Human Resouce Management, Margham Publications, Chennai.
2. Biswanath Ghosh, (2002), Human Resource Development and Management, Vikas Publishing House Pvt Ltd, New Delhi.
3. Aswathappa, (2009), Human Resources Management, Tata McGraw-Hill Education (India) Ltd, New Delhi.

Semester - V

Part – III Hours/week: 3

Core Course – XVII Credits: 2

Paper Code: 18U5CM17

Tally

Objective: To enable the students to learn basic concepts and Application of Accounting Packages.

Unit – I Basic Accounting Principles (7 hours)

Accounting Principles – Concepts and Convention – Definition – Types of Concepts. Types of Conventions – Transactions: Types of Accounts – Golden Rules. Transaction – Types of Journal Books – Accounting Voucher in Tally – Compound Journal Entry. Mode of Accounting: Trial Balance – Posting. Financial Statement: Trading and Profit and Loss Account – Balance Sheet.

Unit – II Introduction to Tally (7 hours)

Introduction to Tally: Features of Tally Creation – Alteration and Deletion of Company in Tally - Practical Exercise. Back Up and Restore – Report Generation.

Unit – III Accounting Info (7 hours)

Accounts info –Ledger and Group Creations: Creation, Alteration and Deletion in Single and Multiple Mode – Practical Excise – Voucher Creation – Bank Reconciliation Statement. Cost Center and Cost Category – Multi Currency – Interest Calculation -Budgets and Credit Limits – Day Book.

Unit – IV Inventory Info (7 hours)

Inventory info- Stock Group – Stock Category – Stock Item – Unit of Measures – Godowns – Inventory Vouchers – Re-Order Level and Status – Multiple Price level – Track Additional Cost of Purchases – Bill Wise Details – Batch Wise Details – Bill of Material.

Unit – V Value Added Tax and Service Tax (7 hours)

Statutory and Taxation – Value Added Tax (VAT) – Tax Deducted at Source (TDS)- Tax Collected at Source (TCS)- Service Tax – Security

Control and Tally Audit - Export and Import – Open Database Connectivity.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understanding Basic Accounting Principles	3
CO-II	Knowledge on Introduction to Tally	3.
CO-III	To know about accounts info.	5
CO-IV	To Comprehend Inventory info- Stock Group.	7
CO-V	To know about Value Added Tax.	1

Text Book:

1. Namrata Agrawal, (2009) , Tally 9, Dream Tech Press New Delhi.

Reference Book:

1. S.V. Srinivasa Vallabhan (2006), Computer Applications in Business, Sultan Chand & Sons New Delhi.
2. P.Parameswaran,(2009), Computer Applications in Business, S.Chand & Co Ltd. New Delhi.

Semester –V

Part – III Hours/week: 5

Credits: 4

(To choose any one out of two)

Elective Papers – I

Paper Code: 18U5CME01

Office Organisation

Objective: To enable the students to understand management and office methods, Environment procedures.

Unit – I Introduction to Office Concept (13 hours)

Modern Office – Meaning, Importance – Function – Location of Office – Office Layout – Open and Private Offices – Office Environment, Lighting, Ventilation Freedom From Noise and Dust, Sanitary, Security and Secrecy Problems.

Unit – II Organisation Chart (13 hours)

Office Organisation – Importance – Types – Organisation Chart – Office Manuals – Delegation of Authority and Responsibility – Centralization vs Decentralization.

Unit – III Office System (14 hours)

Office Systems - Flow of Work – Role of Office Manager – Office Forms – Forms of Control – Departmentation - Forms of Designing – Control of Correspondence – Handling Inward and Outward Mails.

Unit – IV Filing System (12 hours)

Stationery – Importance – Control of Stationery Cost – Purchasing – Stationery Supplies – Filing – Importance – Functions – Characteristics of Good Filing System – Indexing – Meaning, Importance and kinds.

Unit – V Office Equipments (13 hours)

Leadership – Types – Motivation Theory - Office Furniture – Types of Furniture – Office Machine and Equipments – Object of Mechanization – Types Office Machines – Uses of Computers in Office – Criteria for Selection.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understanding about Introduction to Office Concept and office environment.	6
CO-II	To knowing organization chart , Duties and responsibilities.	9
CO-III	Described about office system and functions.	3
CO-IV	Understand about Filling system and methods of filling.	10
CO-V	To learn about leadership and office machine usage.	8

Text book:

1. S.P. Arora, (2009), Office Organisation, Vikas Publishing House New Delhi.

Reference books:

1. R.S.N Pillai and Bagavathi, (2005), Office Management, S.Chand C. Ltd, New Delhi.
2. C.B.Gupta, (2005), Business Management , Sultan Chand & Co, New Delhi.
3. S.A. Sherlakar, (2009), Principles of Business Management, Himalaya Publishing House, Mumbai.

Semester - V

Part – III Hours/week: 5

Credits: 4

(To choose any one out of two)

Elective Papers – I

Paper Code: 18U5CME03

Fundamentals of Insurance

Objective: To enable the students to know the fundamentals of Insurance.

Unit – I Introduction to Insurance (12 hours)

Definition of Insurance – General Principles of Insurance – Types of Insurance – Life, General, Fire and Marine – Difference Between Life and General Insurance.

Unit – II Life Insurance (13 hours)

Life Insurance – Objects – Different Types of Life Policies – Annuities – Formation of Life Insurance Contacts – Assignment and Nominations – Lapses - Revival of Policies

Unit – III Claims (13 hours)

Surrender Value – Paid Up Value – Loans – Claims – Procedure for Claims – Settlement of Claims – Third Parity Claims.

Unit – IV Marine Insurance (14 hours)

Marine Insurance – Functions – Marine Perils – Types of Marine Policies – Clauses in General Use – Warranties and Conditions – Proximate Cause – Subrogation and Conciliation – Re-Insurance – Double Insurance – Types of Marine Losses.

Unit – V Fire Insurance (13 hours)

Fire Insurance – Characteristics – Subject Matter – Fixation of Premium – Fire Waste – Hazards of Fire – Physical and Moral Types of Fire Policies – Cover Note Surveys and Inspection – Average Clause – Re-Insurance and Renewals – Causal Proxima.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	To understand about General Principles of Insurance	4
CO-II	Comprehend Life Insurance and Importance.	9
CO-III	To Learn Benefits and surrender value of insurance.	3
CO-IV	Described about Marine Insurance Policy	10
CO-V	To Understand Fire Insurance and some relate Items.	10

Text book:

1. M.N. Mishra,(2000), Insurance Principles and Practice, S.Chand & Co Ltd, New Delhi.

Reference books:

1.A.Murthy (2000), Elements of Insurance, Margham Publication, Chennai – 17.

2.M.Radhasamy &Vasudevan,(2005), Insurance, Sultan Chand & Co Ltd, New Delhi.

3.Periyasamy,(2009), Principles and Practice of Insurance, Himalaya Publishing House, New Delhi.

Semester - VI

Part – III Hours/week: 5

Core Course – XVIII Credits: 4

Paper Code: 18U6CM18

Management Accounting

Objective: To provide the students an understanding of the application of accounting techniques for management and well equipped with decision making as managers.

Unit – I Introduction to Management Accounting (13 hours)

Management Accounting – Meaning – Objectives – Nature and Scope – Distinguish Between Management Accounting with Cost Accounting and Financial Accounting.

Unit – II Ratio Analysis and Fund Flow Analysis (14 hours)

Ratio Analysis – Uses and Limitations of Ratio Analysis - Fund Flow Analysis and Cash Flow Analysis (New Format).

Unit – III Budgetary Control (12 hours)

Budgets and Budgetary Control – Preparation of Production Budget, Purchase Budget, Sales Budget, Cash Budget and Flexible Budget.

Unit- IV Marginal Costing (13 hours)

Marginal Costing – Absorption Costing – P/V Ratio – BEP and Margin of Safety – Practical Application of Marginal Costing Technique to Different Situations.

Unit- V Standard Costing (13 hours)

Standard Costing – Meaning – Material – Labour – Overheads Variances.

Note: The Questions may be asked from the Problems at 80% and Theory at 20% in each unit.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Described various management accounting concepts and nature.	4

CO-II	Preparing Ratio Analysis and Fund Flow Analysis.	3
CO-III	Acquired knowledge and preparing kinds of Budgetary Control.	5
CO-IV	Understands on how to Prepare Marginal Costing	7
CO-V	Preparation of Standard Costing.	5

Text book:

1.T.S.Reddy and Y.Hari Prasad Reddy, (2009), Management Accounting, Margham Publication Chennai – 17.

Reference books:

1. A.Murthy & S.Gurusamy, (2008), Management Accounting , Tata McGraw Hills Publisher New Delhi.

2 .S.N.Maheswari, (2009), Management Accounting, Sultan Chand & Sons,
New Delhi.

3. R.K. Sharma,(2009), Management Accounting, Kalyani Publisher Noida.

Semester - VI

Part – III Hours / week : 5

Core Course – XIX Crédits : 4

Paper Code : 18U6CM19

Entrepreneurship Development

Objective : To Inculcate the students a sense of becoming Job providers rather than Job seeker.

Unit – I Introduction to Entrepreneurship (13 hours)

Entrepreneurship – Meaning – Nature and Characteristics of an Entrepreneur – Qualities, Traits - Types and Functions of an Entrepreneur – Role of Entrepreneur in Economic Development.

Unit – II Entrepreneurial Motivation (13 hours)

Meaning Theories of Motivation – Maslow and Mcgregor – Motive for Starting an Enterprise – Entrepreneurial Behaviour- Factors that motivate the entrepreneur to establish and enterprise testing - Entrepreneurial motivation.

Unit – III Establishing an Enterprise (14 hours)

The Start up Process – Project Identification and Selection – Project Formulation – Assessment of Project Feasibility, Marketing Survey, Risk Analysis, Break-Even Analysis – Preparation of Project Report, Selection of Site – Legal Considerations – Basic Start-up Problems.

Unit – IV Institutional Finance to Entrepreneurs (13 hours)

National Small Industries Corporation (NSIC), Small Industries Development Organization (SIDO), Small Scale Industries and Bank of India (SIDBI),District Industrial Centres (DIC), Tamilnadu Industries Investment Corporation (TIIC) and Commercial Banks.

Unit – V ED Programmes (12 hours)

Entrepreneurial Development Programmes in India – Role of SISI, SIPCOT and SIDBI - Incentives and Subsidies.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	To understand Introduction to Entrepreneurship.	2
CO-II	To Know about Entrepreneurial Motivation	4
CO-III	To know about Establishing an Enterprise.	6
CO-IV	To Realize Institutional Finance to Entrepreneurs.	9
CO-V	To know about Functions and ED Programmes	10

Text book:

1. C.B. Gupta, (2009), Entrepreneurial Development, S.Chand & Co, New Delhi.

Reference books:

1. Renu Arora & S.K.Sood,(2008), Fundamentals of Entrepreneurship and Small Business , Kalyani Publishers, New Delhi.
2. S. Khanga,(2007), Entrepreneurial Development, S.Chand & Co Ltd, New Delhi.

Semester - VI

Part – III Hours/Credits: 5

Core Course – XX Credits: 4

Paper Code: 18U6CM20

Income Tax – Law and Practice – II

Objective: To help the students understand and apply concepts and provisions of Income Tax Act, 1961.

Unit – I Capital Gain (13 hours)

Capital Gain – Basis of Charge – Capital Assets – Meaning and Definition - Transfer of Capital Assets – Types of Capital Gain – Exemptions – Computation of Capital Gains – Capital Loss – Tax on Capital Gains.

Unit – II Income from Other Sources (13 hours)

Income from Other Sources – General Incomes – Specific Incomes – Deductions in Computing Income from Other Sources – Computation of Income from Other Sources.

Unit – III Set Off and Carry forward of Losses (14 hours)

Aggregation of Income – Deemed Incomes – Deduction from Gross Total Income – Set Off and Carry Forward of Losses.

Unit – IV Computation of Tax Liability (12 hours)

Computation of Tax Liability – Rules of Income Tax – Surcharge – Tax Free Incomes – Tax Rebates – Tax Relief – Computation of Tax Liability of Individual and Firms.

Unit – V Assessment Procedure (13 hours)

Income Tax Authorities – Powers – Assessment Procedure – Types of Assessment – Appeal – E-Filing of Returns - Revisions.

Note: The Questions may be asked from the Problems at 80% and Theory at 20% in each unit.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	To identified types of capital gain, calculation and Exempted.	10

CO-II	To Know about Income from Other Sources and calculation	7
CO-III	To know about Aggregation of Income and Gross Total Income	3
CO-IV	To practice Computation of Tax Liability, tax Rebate and relief	8
CO-V	To know about Assessment of tax and E-Filling methods	12

Text books:

1.V.P.Gaur & Narang, (2019),Income Tax Law and Practice - Kalyani Publishers, Ludhiana.

2. T.S.Reddy & Hari Prasad Reddy, (2019), Income Tax Theory, Law & Practice, Margham Publications, Chennai – 17.

Reference books:

1) A.Jayakumar & N. Hariharan (2019), Income Tax Law and Practice, Vijay Nicole Imprints (P) Ltd. Chennai.

2)Dinkar Pagare, (2019), Income Tax Law and Practice, Sultan Chand & Sons, New Delhi.

3). N.Hariharan (2019), Income Tax Law and Practice, Tata McGraw Hills Publishing House, New Delhi.

Semester - VI

Part – III Hours/Credits: 5

Core Course – XXI Credits: 4

Paper Code: 18U6CM21

Financial Management

Objectives: To communicate knowledge on the fundamentals of finance function in business and to develop skills in financial analysis and decision making.

Unit I Introduction to Financial Management (12 hours)

Meaning – Definition – Scope - Objectives of the Financial Management – Profit Maximization Vs. Wealth Maximization - Functions of FM - Role of Financial Manager in Financial Management.

Unit II Capital Structures and Leverages (13 hours)

Capital structure - Meaning – Definition - Optimum Capital Structures – Factors determining capital structures –Theories of capital structures – Leverage Meaning – Types of leverages.

Unit III Cost of Capital (14 hours)

Cost of capital – Meaning – Definition – Importance - Factors determining Cost of capital - Cost of equity – cost of preference capital – Cost of debt – Cost of retained earnings – weighted Average (or) composite cost of capital (WACC)

Unit IV Dividend Policies (13 hours)

Introduction Dividend policies – Meaning – Types of Dividends - Factors determining dividend policy - Dividend Theories – Walter's model - Gordon's Model – Modigliani Miller Hypothesis Model.

Unit V Working Capital Management (13 hours)

Working capital - Meaning - Definition – Sources of Working Capital - Types of working capital – working capital operating cycle – Factors influencing working capital – Forecasting of working capital requirements - Cash Management – Receivables Management.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	To Knowing Introduction to Financial Management and function.	6
CO-II	Comprehend the knowledge about Theories of capital structures and Types of leverages.	2
CO-III	Grasp about Factors determining Cost of capital.	7
CO-IV	To know about Introduction Dividend policies and theories.	7
CO-V	Described about Working Capital Management.	5

Text Book:

1. S.N.Mageswari, (2009), Financial Management, Sultan Chand and Sons, Delhi.

Reference Books:

1. Khan- M.Y. and Jain P.K, (2003)Financial Management Text and Problems, Tata McGraw Hill Co., New Delhi.

2. Prasanna Chandra, (2005) Financial Management Theory and Practice – Tata Mc Graw Hill Co., New Delhi.

3. Pandey I.M., (2008), Financial Management, Vikas Publishing House Pvt Ltd, New Delhi.

Semester - VI

Part - III Hours/week: 5

Credits: 4

(To choose any one out of two)

Elective Papers – II

Paper Code: 18U6CME02

E-Commerce

Objectives: To expose the students in IT Field with commerce and to provide them with the fundamental knowledge of the use of computers in business.

Unit – I Introduction to e- Commerce (13 hours)

Introduction to e-Commerce – Meaning – Evolution and growth of e-Commerce – Advantages of e-commerce – Disadvantages of e-commerce - E-commerce and traditional commerce – IT Act, 2000 – Important highlights of the IT Act.

Unit – II E-Business Models (14 hours)

Business to Business to E-Commerce (B2B) – Business to Consumer (B2C) – Consumer to Business (C2B) – Consumers to Consumer (C2C) – Business to Employee (B2E) – Business to Government.

Unit – III E-Marketing and Advertising (12 hours)

E-marketing – Meaning – Advantages – e-Marketing Mix – e-advertising – format of web advertising - Electronic Data Interchange (EDI) – Process – EDI Components - Benefits.

Unit – IV E-Payment Systems and Securities (13 hours)

E-Payment – Meaning – Benefits - Methods of e- payment systems – Electronic Fund Transfers (EFT) – Process of EFT – E-Security – Security Threats – e- security Protection - Firewall Concepts – Types.

Unit – V Web Technologies (13 hours)

Introduction to web Technology – Web Server and Client - Networking – Classification of Networking – Networking Topology – Types – Internet and World Wide Web(WWW) –Internet Protocols – types of Protocols.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	To Knowing about E-Commerce and Importance.	12
CO-II	To Understand about Business Models.	5
CO-III	Acquired knowledge about E-Marketing and e-advertisement.	4
CO-IV	Understands on various e-Payment systems, Advantage and Disadvantage.	12
CO-V	To understand about Web Technologies.	6

Text Book:

1. L.T. Joseph, (2019) E- Commerce, A Managerial Perspective, Prentice Hall Publications, New Delhi.

Reference Books:

1. K. Abirami Devi, M. Alagammai, (2009), E –Commerce, Margham Publications, Chennai – 17.
2. Kamalesh N. Agarwala, Amit Lal, Deeksha Agarwala, (2008), Business on the Net: An Introduction to the What's and How's of E-Commerce; Macmillan, New Delhi.
3. Greg Holder, (2008), Starting an E-Commerce Business, IDG Books India (P)Ltd, New Delhi.

Semester –VI

Part- III Hours/week: 5

Credits: 4

(To choose any one out of two)

Elective Papers – II

Paper Code: 18U6CME04

Principles and Practice of Co-Operation

Objective: To understand the principles and practice of Co – Operative Societies.

Unit – I Introduction to Co – Operation (13 hours)

Co-Operation – Definition – Capitalism and Socialism – Cooperation as a Golden Mean between Capitalism and Socialism – Principles of Cooperation

Unit – II Evolution of the Co-Operative (14 hours)

Evolution of the Cooperative Movement – Robert Owen – Rochdale Pioneers – Indian Cooperative Movement – 1904 and 1912 Acts – Committees – All India Rural Credit Survey – State Bank of India – Recent Trends.

Unit – III Co-operative Structure (13 hours)

Co-operative Structure – Short Term Credit – Primary Agricultural Cooperative Banks – District Central Cooperative Banks – Tamilnadu State Cooperative Banks – Long Term Credit – PARD Banks – CARD Bank.

Unit – IV Non-Credit Cooperative Societies (12 hours)

Non-Credit Cooperative Societies – Consumer Stores – Marketing Societies – Dairies – Housing Societies – Industrial Cooperatives, Weavers Societies.

Unit – V Co –Operative Development (13 hours)

Rule of Other Institutions in Cooperative Development – Government and Cooperation – Legal, Organizational and Financial Assistance – The Reserve Bank of India Relating to Cooperative Banks – Licensing NABARD.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-I	Understand about Introduction to Co – Operation.	5
CO-II	Described about Evolution of the Co-Operative.	2
CO-III	Understand the concepts of Co-operative Structure.	9
CO-IV	To know Non-Credit Cooperative Societies.	10
CO-V	Understand about Co –Operative Development.	12

Text book:

1. C.B. Gupta, (2000), Co-Operation Planning and Policy Sultan Chand & Sons, New Delhi.

Reference book:

1. R.D. Bedi, (2004), Theory, History and Practice of Co – Operations, Lall Book Depot, U.P.

Selvamm Arts & Science College

(Autonomous)

Nationally Re-Accredited at the Highest Grade "A" by NAAC

UGC Recognized 2(f) and 12(B) Institution

Affiliated to Periyar University, Salem-11

Namakkal - 637003.

Question Paper Pattern for

Theory Subjects

Time: 3 Hours Max. Marks: 75

PART – A (10 x 1 = 10 Marks)

Answer All Questions

(Two questions from each unit)

PART – B (5x2=10 Marks)

Answer All Questions

(One question from each unit)

PART – C (5 x 5 = 25 Marks)

Answer All Questions

(One Question from each unit with internal choice)

PART – D (3 x 10 = 30 Marks)

Answer any three questions out of five

(One Question from each unit)

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Namakkal - 637003.

Question Paper Pattern for

Accounts Subjects

Time : 3 Hours Max. Marks: 75

PART – A (10 x 1 = 10 Marks)

Answer All Questions

(Two questions from each unit)

PART – B (5x2=10)

Out of 5 Questions – 3 Theory – 2 Problems

PART – C (5 x 5 = 25 Marks)

Answer All Questions

(One Question from each unit with internal choice)

Out of 5 Questions – One Theory Question and Four Problems

PART – D (3 x 10 = 30 Marks)

Answer any three questions

(One Question from each unit)

Out of 5 Questions – 1 Theory and 4 Problems

SELVAMM ARTS & SCIENCE COLLEGE
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NAAC ISO 9001:2015 Certified Institution
Namakkal – 637 003.

BACHELOR OF COMMERCE (COMPUTER APPLICATIONS)

B.Com (CA)

CHOICE BASED CREDIT SYSTEM

SYLLABUS

(Effective from the Academic Year 2018-2019)

Vision:

To Make the Department as a Center for Excellency.

Mission:

1. To provide the cutting-edge technologies in the teaching process
2. To offer job oriented courses that are demanded in the job market
3. To serve the society exploring the potential opportunities for the students.

Programme Outcomes (UG)

PO 1: Communicate effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between Professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.

PO 2: Environment Concern - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other Disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor.

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society.

Selvamm Arts and Science College (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)
COURSE STRUCTURE UNDER CBCS
(Applicable to the candidates admitted from the academic year 2018 – 2019 onwards)

SEM.	PART	COURSE CODE	TITLE OF THE COURSE	HRS/ WEEK	CREDITS	EXAM HRS.	MARKS		TOTAL MARKS
							INTERNAL	EXTERNAL	
I	I	18U1FTA01 / 18U1FHI 01	Foundation Tamil – I / Hindi – I	5	4	3	25	75	100
	II	18U1FEN01	Foundation English – I	5	4	3	25	75	100
	III	18U1CC01	Financial Accounting - I	5	5	3	25	75	100
		18U1CM02/ 18U1CC02	Business Communication	4	4	3	25	75	100
		18U1CCA01	**Allied - I**: MS Office	4	3	3	25	75	100
		18U1CCAP01	**Allied Practical - I :** MS Office – Lab	3	2	3	40	60	100
	IV- B		Skills **(LSRW)** Through English (STE)	2	-	-	-	-	-
		18U1VE01	**Value Education:** Yoga and Practice	2	1	3	25	75	100
TOTAL				**30**	**23**				**700**
II	I	18U2FTA02 / 18U2FHI02	Foundation Tamil –II / Hindi –II	5	4	3	25	75	100
	II	18U2FEN02	Foundation English – II	5	4	3	25	75	100
	III	18U2CC03	Financial Accounting - II	5	5	3	25	75	100
		18U2CC04	Principles of Management	4	4	3	25	75	100
		18U2CCA02	**Allied -II**: Tally	4	3	3	25	75	100
		18U2CCAP02	**Allied Practical- II:** Tally - Lab	3	2	3	40	60	100
	IV-B	18U2ES01	**Value Education:** **1.** Environmental Studies	1	1	3	25	75	100
		18U2VE02	**2.** Values for Life	1	1	3	25	75	100
			Skills **(LSRW)** Through English (STE)	2	-	-	-	-	-
TOTAL				**30**	**24**				**800**

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

COURSE STRUCTURE UNDER CBCS
(Applicable to the candidates admitted from the academic year 2018 – 2019 onwards

SEM.	PART	COURSE CODE	TITLE OF THE COURSE	HRS/ WEEK	CREDITS	EXAM HRS.	MARKS INTERNAL	MARKS EXTERNAL	TOTAL MARKS
III	III	18U3CM05/ 18U3CC05	Business Law	5	4	3	25	75	100
		18U3CM06 / 18U3CC06	Corporate Accounting - I	6	4	3	25	75	100
		18U3CC07	Web Designing	4	4	3	25	75	100
		18U3CCP01	**Practical - I :** Web Designing - Lab	3	2	3	40	60	100
		18U3STA05	**Allied –III :** Business Statistics	6	4	3	25	75	100
	IV- A	18U3CCS01	**SBEC:** Financial Services	2	2	3	25	75	100
	IV -B	18U3BBN01	**NMEC:** Personality Development	2	2	3	25	75	100
			Skills **(LSRW)** Through English (STE)	2	-	-	-	-	-
TOTAL				**30**	**22**				**700**
IV	III	18U4CM09 / 18U4CC08	Company Law and Secretarial Practice	5	4	3	25	75	100
		18U4CM10 / 18U4CC09	Corporate Accounting - II	6	4	3	25	75	100
		18U4CC10	Visual Programming	4	4	3	25	75	100
		18U4CCP02	**Practical - II :** Visual Basic - Lab	3	2	3	40	60	100
		18U4STA04	**Allied- IV :** Fundamentals of Operations Research	6	4	3	25	75	100
	IV-A	18U4CCS02	**SBEC:** Stock Market operations	2	2	3	25	25	100
	IV- B	18U4BBN02	**NMEC:** Service Marketing	2	2	3	25	75	100
			Skills **(LSRW)** Through English (STE)	2	-	-	-	-	-
TOTAL				**30**	**22**				**700**

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

COURSE STRUCTURE UNDER CBCS

(Applicable to the candidates admitted from the academic year 2018 – 2019 onwards)

SEM.	PART	COURSE CODE	TITLE OF THE COURSE	HRS/ WEEK	CREDITS	EXAM HRS.	MARKS		TOTAL MARKS
							INTERNAL	EXTERNAL	
V	III	18U5CC11	Cost Accounting	6	5	3	25	75	100
		18U5CC12	Income Tax Law and Practice-I	6	5	3	25	75	100
		18U5CC13	Auditing	6	5	3	25	75	100
		18U5CC14	E-Commerce	5	4	3	25	75	100
			Elective Course- Group A (choose any one course)	5	4	3	25	75	100
		18U5CCE01	1.Modern Banking						
		18U5CCE02	2. Office Organization						
		18U5CCE03	3. Fundamentals of Insurance						
	IV-B		Skills **(LSRW)** Through English (STE)	2	-	-	-	-	-
TOTAL				**30**	**23**				**500**
VI	III	18U6CC15	Management Accounting	6	5	3	25	75	100
		18U6CC16	Income Tax Law and Practice-II	6	5	3	25	75	100
		18U6CC17	Entrepreneurship Development	5	4	3	25	75	100
			Elective Course- Group B (choose any one course)	5	4	3	25	75	100
		18U6CCE04	1.Marketing Management						
		18U6CCE05	2.Financial Management						
		18U6CCE06	3.Human Resource Management						
		18U6CCP03	**Practical - III:** Commerce Practical	6	5	3	25	75	100
	IV-B		Skills **(LSRW)** Through English (STE)	2	1	-	-	-	-
	V	18U6CCEX01	**Extension Activities:** #Empowering Rural people **(ERP)**	--	2	-	-	-	-
TOTAL				**30**	**26**				**500**

No Autonomous Board Exam. Only Credit is given.

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

Note: Total number of Hours: **180 Hours** for all the semesters. (30 Hrs. Per semester)
Total number of Credits: **140 Credits** for all the semesters
Total Marks**: 3900** for all the semesters.

SUMMARY OF COURSE STRUCTURE

Part	Subject	Course	Total Credits	Course	Marks	Total marks
Part I	Languages	2	8	2	100	200
Part II	English	2	8	2	100	200
Part III	Core: Theory	17	76	17	100	1700
	Core: Practical	3	8	3	100	300
	Allied: Theory	4	14	4	100	400
	Allied: Lab	2	4	2	100	200
	Elective	2	8	2	100	200
Part IV - A	SBEC	2	4	2	100	200
Part IV - B	Value Education	3	3	3	100	300
	NMEC	2	4	2	100	200
	Skills Through English (STE)	--	1	--	--	--
Part V	Extension Activities	--	2	--	--	--
	TOTAL	**39**	**140**			**3900**

List of Elective course (choose one from each Group)		
Group - A	18U5CCE01	1. Modern Banking
	18U5CCE02	2. Office Organization
	18U5CCE03	3. Advertising and Sales Promotion
Group - B	18U5CCE04	1. Marketing Management
	18U5CCE05	2. Financial Management
	18U5CCE06	3. Human Resource Management

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

Skill Based Elective Course (SBEC)		
Semester III	18U3CCS01	Financial Services
Semester IV	18U4CCS02	Stock Market operations

Non-Major Elective Course (NMEC)		
Semester III	18U3BBN01	Personality Development
Semester IV	18U4BBN02	Service Marketing

List of Non-Major Elective Courses offered to other departments:

S.No.	Name of the Course
1.	1. Principles of Accountancy
2.	2. Principles of Marketing
3.	3. Practical Banking
4.	4. Fundamentals of Taxation

List of Certificate Courses offered by the Department:

SEMESTER	NAME OF THE COURSE
Odd Semester	1. Principles of Marketing
	2. Industrial Relations
	3. International Trade
Even Semester	1. Fundamentals of Insurance and its legal Aspects
	2. Practical Banking
	3. Goods and Service Tax

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

Programme Specific Outcomes (PSOs)

PSO-1	Understand basic concepts of finance and accounting, amalgamation, absorption, holding company, cost accounting, management accounting, process accounting, company final accounts and ratio analysis.
PSO-2	Understand basic concepts of Non-profit organization, to know provisions of depreciation, to know the business knowledge in both theoretical and practical aspects of auditing, and material overheads.
PSO-3	Understand basic concepts of communication, business and company correspondence and to know the preparation of resume, and to understand fundamental concepts IND AS, IFRS and Disclosures.
PSO-4	Understand basic concepts of branch, hire purchase system, royalty, and partnership firm, to know the selection procedure and motivation of employees and various reports and records ,entrepreneurship, human resource management.
PSO-5	To know the scope and procedures of commerce, management, co-ordination ,banking system, understand the concept of financial services, stock brokers and merchant bankers, NSE Concepts.
PSO-6	Understand basic concepts of law, company law , contract, bailment, sale of goods . To know the valuation of goodwill, factoring services and credit rating.
PSO-7	To know the issue of equity shares, preference shares, debentures and redemption of preference shares and debentures. To know the self esteem, time management, and drafting minutes and safety measures of employees.
PSO-8	Understand basic concepts of office and organization,GD, HR, Technical interview, and to learn thorough knowledge on formation of company, stock market , services to hospital, hotel and educational institution. And to know the concept of auditor.
PSO-9	Understand basic concepts of market, market research, product policies, advertising , insurance, capital market, new issue market, service marketing mix, develop the concept of remuneration and incentives and verification of assets and liabilities.
PSO-10	Understand basic concepts of income tax, house property, business or profession, capital gains, income from other sources, gross total income, set off and carry forward of losses, tax liability and assessment procedure.

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

ghLJ;JPL;LK : Kjyhkhz;L Kjy; gUtk; **Credits: 4**
jhs;Fw|aPL :18U1FTA01 **Hours/ Week:5**

,f;fhy ,yf;fpaKk rpWfijAk

ghL Nehf;fk;:

jw;fhy khztu;fSf;Fg; gy;NtW fhyf;fL;Lq;fspy Njhd;w|a ft|ij› ,yf;f|ag; gh|khdj;ijAk; rpWfijf fsj;ijAk; mwpKfg;gLj;Jk; tifapy; ,j;jhsmikf;fg;GL;Ls;sJ.

myF : 1 kuGf;ft|ij

1. m. te;Nj khjuk; (ehL;L tzf;fk;) - ghujpahu
   M. nre;jkpo ehL - ghujpahu
   ,. jkpo; - ghujpahu
2. m. jkpo;g;NgW - ghujpjhrd
   M. jkpo;f;fdT - ghujpjhrd
   ,. ngz;Zf;F ePjp - ghujpjhrd
3. kUkf;fs; top
   khd;kpak; fz;LWPE;J
   khw;wDk;
   (m.khkp murpaw; gLYk 60 tu|fs;) - ft|kz| Njrpf t|ehafk;gps;is
4. jkpopy ngau|Lq;fs; - ft|Qu Ruhjh
5. thdt|y; - eh.fhkuhrd;
6. ghujg g+r;nrz;L - fz;zjhrd
7. tUq;fhykcz;L - gL;LF;NfhL;IL fy;ahzRe;juk;
8. fdT -mg;Jy; uFkhd;
9. neQ;rNk epy;! epy;! - ft|Qu kPuh
10. ,d;gk; - ituKj;J

myF :2

11. f|uPLNk Nfs; - K.Nkj;jh
12. NkhJ – Kd;NdW - gh.t|[a
13. Mwhk; mwpT - nry;yh
14. XL XL rq;f|yp - rpw;gp
15. tho;f;if - ty;ypf;fz;zd;
16. cd iffs; - ft|Qu Jsrpjhrd
17. gL;baypypUe;J - kD \ ;aGj;j|ud;
18. Jauk; - nghd;.t|f;uk;
19. ntL;Lf;f|spAk; gL;LHk;G+r;rpAk - jkpor;rp jq;fghz;bad;

myF: 3

1. etPd rpWfijfs; - epA‹ nrQ;Rup Gf
   `T]; ntspaPL› mk;gj;J}u› nrd;id

myF: 4 ,yf;f|a tuyhW

1. kuGf ft|ij apd; Njhw;wKk; tsu;r;rpAk;
2. GJf;ft|ij apd; Njhw;wKk; tsu;r;rpAk;
3. jkpopy i`f;$ ft|ijfs
4. rpWfij apd; Njhw;wKk; tsu;r;rpAk

myF: 5 ,yf;fzk;

1. vOj;jpd; tiffs;: Kjy;> rhu;G vOj;Jf;fs;
2. nkhop Kjy;> nkhop ,Wjp vOj;Jf;fs;
3. vOj;jpd; ghFghLfs;: Fwpy;> neby> RL;L> tpdh
4. nrhy - gFgjk;> gfhg;gjk;
5. vOj;Jg; Gzu;r;rp ,ay;G tpfhuk;
6. ty;nyOj;J kpFk; ,LQ;Fs;> kpfh ,LQ;fs;

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

Semester -I **Hours/Week: 5**
Code: 18U1FEN01 **Credits : 4**

FOUNDATION ENGLISH - I

PROSE, POETRY, SHORT STORIES, GRAMMAR AND LANGUAGE SKILLS

UNIT-I PROSE

The Tiger in the Tunnel - Ruskin Bond
The Golden Touch - Nanthaniel Hawthorne
Sweets for Angels - R.K.Narayan
How I became a Public Speaker - George Bernard Shaw

UNIT - II POETRY

On His Blindness - John Milton
The Village Schoolmaster - Oliver Goldsmith
The Daffodils - William Wordsworth
Stopping by Woods on A Snowy Evening- Robert Frost

UNIT - III SHORT STORIES

The Ant and the Grasshopper - Somerset Maugham The
Doll" s House - Katherine Mansfield
The Postmaster - Tagore
Gateman" s Gist - R.K.Narayan

UNIT - IV GRAMMAR

Sentence, Clauses and
Phrases Parts of speech
(Noun, Pronouns, Adjectives,
Verbs) Articles, Determiners

UNIT - V LANGUAGE SKILLS

Note making
Précis
writing
Developing hints into an essay/story
Expansion of Proverbs/ Paragraph writing on a given topic.

Text Books:

1. An Anthology of popular essays and poems – A.G.Xavier, Macmillan,
2. A Book of Modern Short stories – G. Kumara Pillai, Macmillan,
3. Modern English – Krishnaswamy.

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

Semester : I **Hours/Week : 6**
Code : 18U1CC01 **Credits : 5**

FINANCIAL ACCOUNTING - I

Objectives

1. To enable the students to acquire basic knowledge of accounting principles, concepts and conventions.
2. To make the students to obtain the skill to prepare basic accounting.

UNIT I

Introduction to Accounting – Definition – Objectives - Accounting Concepts and Conventions – Equations – Types of Accounts – Single entry System - Double Entry System - Book Keeping Vs Accounting. (Theory only)

UNIT II

Journal – Ledger – Trial Balance – Preparation of Final Account with adjustments -Subsidiary Books of Accounts.

UNIT III

Accounts of Non-Profit organization: Receipts and Payments Account – Income and Expenditure account and Balance sheet. Difference between Receipts and Payments Account & Income & Expenditure.

UNIT IV

Bank Reconciliation Statement (BRS) – Meaning – Causes – Methods of Preparation of BRS – Average Due Date – Account Current.

UNIT V

Depreciation**:** Meaning – causes – objectives – methods – Fixed, Diminishing and Annuity. Difference between Straight line method and Written down value method – Provision and Reserves.

CO.No	Upon Completion of this course, students will be able to	PSOs Addressed
CO-1	Enabling the student uses of accounting information, usage and apply accounting concepts, principles and conventions. Finance majors will be able to demonstrate the fundamentals of Accounting, including credits, debits, journal, ledger, balance sheets and subsidiary books.	**1**
CO-2	To learn the **Non**-profit organization receipts and payments account, Income and Expenditure and Balance sheet. Enabling the students use the BRS, account current and average due date in business.	**2**
CO-3	The students were able to know the depreciation and its types and provisions used in companies**.**	**2**

NOTE:

Question paper shall **cover 20% theory and 80% Problems.**

Text book:

1. T.S. Reddy and A.Murthy - Financial Accounting, Margham Publications, Chennai-17.

Reference Books:

1. S.P.Jain and K.L.Narang - Financial Accounting, Kalyani Publishers, Ludhiana.
2. R.S.N.Pillai & Bagavatahi & S.Uma - Fundamentals of Financial Accounting, S.Chand & Sons Publisher, New Delhi
3. Dr.S.Ganesan and Kalavathi - Financial Accounting,Tirumalai Publications, Nagarkovil
4. R.L.Gupta and V.K.Gupta - Financial Accounting, Sultan Chand & Sons, New Delhi.

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

Semester : I **Hours/Week : 5**
Code : 18U1CC02 **Credits : 4**

BUSINESS COMMUNICATION

Objective:

To develop better written and oral business communication skills among the students and enable them to know the effective media of communication.

UNIT – I

Communication – Concept – Need and importance - Objectives – Types - Special Features - Media – Barriers - Functions of Business Letter – Essentials – Layout of Business Letter.

UNIT – II

Letters of Enquiry – Replies, Offer and Quotations – Orders – Execution – Cancellation – Credit and Status Enquires – Circular Letters – Sales Letters – Complaint Letters .

UNIT – III

Bank Correspondence – Insurance Correspondence – Agency Correspondence – E- Correspondence through Electronic Mode.

UNIT – IV

Company Correspondence – Agenda – Minutes – Resolutions – Reports.

UNIT – V

Application for jobs – Resume – Interviews – Preparation for Interview – Group discussion – Soft Skills – Social Networking - Features.

CO. No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	Developed their communication and letter writing skill. To train them to draft business letters relating to different situations.	3
CO-2	The students were able to understand and practice on various business correspondences.	3
CO-3	To make the students to understand the company procedures for preparing various reports.	4
CO-4	To train them in Job training aspects relating to resume preparation and other procedures of the Interview.	3

Text book:

1. Rajendera Pal and J. S. Korla Halli - Business Communication, Sultan Chand & Sons, Delhi.

Reference Books:

1. N.S.Ragunathan - Business Communication, Margham Publications, Chennai-17.
2. R.S.N.Pillai & Bagavathi - Commercial Correspondence, S.Chand & Co, New Delhi.
3. S.K.Mandal - Effective communication and Public Speaking, Jaico Books Publishing House,Delhi.
4. Ramesh and Pattanchetti - Business Communication, S.Chand & Co, New Delhi.

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DEPARTMENT OF COMMERCE (CA)

Semester : I **Hours/Week : 4**
Code : 18U1CCA01 **Credits : 3**

Allied – I: MS OFFICE

Objectives

To know the purpose of application software" s within the MS-Office Package and apply that knowledge in the business.

UNIT - I

Introduction to computers- Generations of computers -Classification of digital computer systems-Anatomy of a digital computer-Memory Units. Input Devices- Output Devices-Auxiliary Storage Devices - Computer Software.

UNIT - II

Using word: Learning word basics - Formatting a word document - Improving your writing: Working with autocorrect and auto format -Using find and replace -Correcting Spelling and Grammatical Errors.

UNIT - III

Using Excel: Creating a simple spreadsheet – Editing and Formatting a spreadsheet-Working with functions and Formulas-Creating Charts: Creating a chart-Modifying a chart-Deleting a chart.

Unit-IV

Using PowerPoint: Creating and Viewing Presentations-Editing a Presentation-Deleting and Rearranging Slides-Changing Presentation Designs, Slide Layouts-Printing a presentation. Working with presentation special effects.

Unit-V

DBMS: Data Model: ER-Model – Basic Concepts – Constraints – Keys – Design Issues – Entity Relationship Diagram – Weak Entity set.

MS Access: Database overview- Creating a database- Modifying table and Creating form – Creating reports

Course outcomes:

CO1: Describe Generations of Modern Computers, Classification of Digital Computer Systems, Auxiliary Storage Devices.

CO2: Learnt about MS Office Products and how to identify the common Screen Elements and Finding Common Ways to Work. Describes Formatting a Word Document and Working with Longer Document.

CO3: Learnt how to create Charts in Excel. Understand how to create and View Presentations and Presentation with Special Effects

Text Book:

1. MS Office - For Every One – Vikas Publishing House, Pvt.Ltd. Sanjay Saxenea.

Reference Books:

1. MS Office - For Every One – Vikas Publishing House, Pvt.Ltd. Sanjay Saxenea.
2. MS Office - Professional Fast & Easy – June Slton, BPB Publications.
3. Alexis Leon, Mathews Leon, ”Fundamentals of computer science & communication Engineering”, Vikas publishing House Pvt Ltd, New Delhi.
4. Diane Koers , ”Microsoft Office XP fast & easy” , Prentice Hall of India Private Limited- New Delhi-110001.

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DEPARTMENT OF COMMERCE (CA)

Semester : I **Hours/Week : 3**
Code : 18U1CCAP01 **Credits : 2**

Allied Practical – I: MS OFFICE - LAB

Objective

To learn the practical knowledge on fundamental concepts of MS-Office Package.

MS-WORD:

1. Starting MS-WORD, Creating, Saving, Printing (with options), Closing and Exiting.
2. a. Create a document, save it and edit the document as follows:
   i. Find and Replace options
   ii. Cut, Copy, Paste options
   iii. Undo and Redo options

   b. Format the document:
   i. Apply font styles(Bold , Italic ,Underline)
   ii. Change font, font size, font color using font dialog box.
   iii. Apply alignments (Center, left, right, justify).
   iv. Changing the paragraph using line spacing, Bullets and numbering.
3. Create a table using MS-Word and do the following
   i. Insert a row
   ii. Insert a column
   iii. Deleting Rows and Columns
   iv. Merge cell
   v. Changing the table border

MS-EXCEL:

a. Create a worksheet, save it and edit the worksheet as follows:

i. Moving a data from cell(Using cut, copy, paste)

ii. Copying a cell (Copying single cell, sequential cells, non sequential cells)

iii. Inserting rows and columns

iv. Deleting rows and columns

b. Formatting work sheets:
   i. Bold style.
   ii. Italic style.
   iii. Font size changing.
   iv. Formatting numbers
   v. Drawing border around cells.
   vi. Printing a worksheet

1. Creating Charts using chart wizard and apply the following:
   i. Changing the chart type (Pie, Bar, Line)
   ii. Inserting titles for the axes X, Y.
   iii. Changing colors
   iv. Printing chart
2. Using functions:
   v. SUM, COUNT, AVERAGE
   vi. MAXI., MINI
   vii. ABS, EXP
   viii. ROUND, SORT

MS-POWER POINT:

1. Creating a presentation using auto content wizard.
2. Different views in power point presentation
3. Creating an organization chart in power point.

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DEPARTMENT OF COMMERCE (CA)

Semester : I **Hours/Week : 2**
Code : 18U1VE01 **Credits : 2**

Value Education: YOGA AND PRACTICE

Objective:

1. To follow the practice of yoga for the long and healthy life.
2. To improve will power to face various challenges in life.
3. To develop the memory power, creativity and intelligence through yoga practice.
4. To introspect the soul through yoga for peaceful life.
5. To bring love and gratitude among the students for the smooth relationship in the society.

UNIT - I

Yoga and physical health: Physical structure of human body – Simplified physical exercises – Maharasanas – Yogasanas.

UNIT – II

Arts of Nuturing life force and mind: Maintaining youthfulness – Sex and spirituality – Ten stages of mind – Mental frequency.

UNIT – III

Sublimation: Purpose of life- Analysis of thought – Moralisation of desire – Neturalisation of Anger.

UNIT – IV

Human Resource Development: Eradication of Worries – Benefits of Blessings – Greatness of friendship – Individual peace.

UNIT- V

Law of Nature: Case and effect system – Purity of thought and deed – Love and compassion – Cultural Values.

VALUE EDUCATION YOGA

Practice:

Hand Exercises, Leg Exercises, Nero- Muscular Breathing exercising, Eye Exercises, Kapalapathi , Makarasana (Part A or Part B), Massage, Acu pressure and Relaxation.

Padmasana, Vajrasanas, Chakrasanas(Side), Viuchasanas, Yoga muthra, patchimothasanas, Ustrasanas, Vakkarasanas and Salabasan.

Text Book :

1 Manavalaikalai Yoga – Aliyar Publications, 2000.

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DEPARTMENT OF COMMERCE (CA)

ghLJ;JPL;LK - Kjyhkhz;L ,uz;LHk gUtk; **Hours: 5 Hrs.**
jhs; FwpaPL: 18U2FTA02 **Credits : 4**

rka ,yf;fpaq;fSk; ciueilAk

ghLNEhf;fk;; :

rka ,yf;fpaq;fSk; rpw;wpyf;fpaq;fSk; jkpo; nkhopf;F Mw;wpa njhz;bid khztH;fs; mwpar; nra;jy;.

myF : 1 **rka ,yf;fpaq;fs;**

1. jpUQhdrk;ge;ju Njthuk - (133-135 ghLY;fs;) (jpUntz;fhL)
2. jpUehTf;furu Njthuk; - (428 - 430 ghLY;fs;) (jpUf;fOkyk;)
3. Re;juu Njthuk; - (22 – 24 ghLY;fs;) (jpUtjpif tPuhL;LHzk;)
4. khzpf;fthrfu - jpUthrfk; - 3 ghLY;fs; (jpUntk;ghit)
5. jhAkhdtu ghLY;fs; - 10 Kjy; 20 fz;zpfs;
6. ehyhapuj; jpt;tpagpuge;jk - 611 Kjy; 613 tiu (12Mk jpUnkhop)
7. Kjy; %d;W Mo;thu;fs; - 3 ghLY;fs;
   1. ngha;ifaho;thu - itak; jfspah -3184
   2. G+jj;jho;thu - md;Ng jfspah -3284
   3. Ngaho;thu - jpUf;fz;NLD; -3384

myF: 2 **rpw;wpyf;fpaq;fs;**

8. Fw;whyf;FwtQ;rp – jpup$LUHRg;gf; ftpuhautre;jty;ypapd fhjy; 1-5 ghLY;fs;
9. Kf;$Lw;gs;S – tpisT> kfpo;T – 5 ghLY;fs;
10. fypq;fj;Jg;guzp – n[aq;nfhz;LHufhL ghbaJ – 5 ghLY;fs;
11. Nrf;fpohu gps;isj;jkpo - kPDHL;rpRe;juk;gps;is mk;Gypg;gUtk - 5 ghLY;fs;
12. jkpo;tpL J}J (1-25 fz;zpfs; tiu)

myF – 3 **ciueilF; fL;LIU**

tho;f;ifiag; GJg;gpg;Nghk - epA+ nrQ;Rup Gf `T];> nrd;id

myF – 4 **,yf;fpa tuyhW**

1. irtj;jpd; Njhw;wKk; tsu;r;rpAk
2. itztj;jpd; Njhw;wKk; tsu;r;rpAk;
3. jkpo;r;rpw;wpyf;fpa tuyhW
4. ciueilAPd; Njhw;wKk; tsu;r;rpAk;

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myF – 5 **,yf;fzk;**

1. nrhy - ehd;F tifr; nrhw;fs; (ngau› t¡id› ,iL> cu¡) ed;D}y;
2. mWtif t¡dh – vz tif t¡IL
3. Ntw;Wik
4. njhifepiy> njhfhepiyj; njhLU¡

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

Semester: II **Hours/Week : 5**
Code: 18U2FEN02 **Credits: 4**

FOUNDATION ENGLISH –II

PROSE, POETRY, GRAMMAR AND COMMUNICATION SKILLS

UNIT - I PROSE

Spoken English and Broken English - G. B.
Shaw Voluntary Poverty - M. K. Gandhi
Kamala Nehru - Jawaharlal
Nehru Professions for Women - Virginia Woolf

UNIT - II POETRY

Sonnet XXIX - William Wordsworth
The Echoing Green - William Black
Journey of the Magi - T. S.
Eliot
Where the Mind is Without Fear - Rabindranath Tagore

UNIT - III GRAMMAR

Tenses and their uses Concord of Agreement
Direct and Indirect speech Active and Passive Voice
Prepositions

UNIT - IV GRAMMAR

Transformation of Sentences Synthesis of Sentences Letter Writing
Dialogue writing

UNIT - V ORAL COMMUNICATION SKILLS (SPOKEN ENGLISH)

Part I - Speaking Skills
Part II - Communication Skills

Text Books:

1. College Prose & Poetry – T.Sriram. Macmillan,
2. The Golden Quill-An Anthology of Poetry - P.K.Seshadri, Macmillan,
3. Modern English - Krishnaswamy

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

Semester : II **Hours/Week : 6**
Code : 18U2CC03 **Credits : 5**

FINANCIAL ACCOUNTING - II

Objectives:

1. To gain knowledge of accounting in general and to understand the system financial Accounts.
2. To know the importance and disclosures of Accounting Standards.

UNIT- I

Branch Accounts – Meaning - Definition - objectives of Brach accounting – types. Dependent branches – Debtors system – Stock and Debtors system (Excluded Foreign branches). Departmental Accounts (Excluding inter-departmental accounts)

UNIT-II

Hire Purchase and Installment Purchase Accounts – Meaning – Accounting for Hire Purchase system – Hire purchase trading account – Distinction between Hire purchase system and Installment system.

UNIT- III

Royalty Accounts – Meaning – Accounting treatment – Minimum Rent – Short working and Recoupment – Strike period (Excluding Sub-lease)

UNIT-IV

Partnership Accounting – Admission – Retirement – Death – Insolvency of One Partner and All Partners.

UNIT-V

Inflation, HR and Social Responsible Accounting – Accounting Standards – Indian Accounting Standards (IND AS) - International Financial Reporting Standards (IFRS) – Accounting Disclosures.(Theory only)

CO.No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	Students understand the concept of branch accounts and knowhow to prepare the accounts of branch accounts. The students gathered knowledge about hire purchase system and installment system.	**4**
CO-2	To understand the concept of minimum rent, short workings in royalty. To learn admission, retirement, death, insolvent of a partner**.**	**4**
CO-3	To familiarize with the provisions of IND AS, IFRS and accounting disclosures	**3**

NOTE:

Question paper shall **cover 20% theory and 80% Problems.**

Text book:

1. T.S. Reddy and A.Murthy - Financial Accounting, Margham Publications, Chennai.

Reference Books:

1. Dr.S.Ganesan and Kalavathi - Financial Accounting, Tirumalai Publications, Nagarkovil.
2. R.L.Gupta and V.K.Gupta - Financial Accounting, Sultan Chand & Sons, New Delhi.
3. S.P.Jain and K.L.Narang - Financial Accounting, Kalyani Publishers, Ludhiana.
4. R.L.Gupta and V.K.Gupta - Financial Accounting, Sultan Chand & Sons, New Delhi.

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DEPARTMENT OF COMMERCE (CA)

Semester : II **Hours/Week : 5**
Code :18U2CM04/18U2CC04 **Credits : 4**

PRINCIPLES OF MANAGEMENT

Objective:

To make the students to gain the knowledge in principles and functions of management.

UNIT- I Introduction to Management

Meaning – Definition – Concepts – Objectives - Nature and Scope of Management – Functions of Management – Scientific Management – Principles of Management Contribution by F.W. Taylor and Henry Fayol.

UNIT- II Planning and Decision-making

Planning - Meaning, Nature and Importance of Planning – Steps in Planning – Forecasting – Decision Making Process – Types of Decisions.

UNIT- III Organizing and Staffing

Organizing – Natures – Structure - Departmentalization – Principles of Organization - Line - Staff Conflict - Delegation of Authority – Decentralization – Effective Organization – Organizational Charts – Informal Organization – Staffing– Meaning – Definition – Concept – Objectives – Functions – Selection – Recruitments.

UNIT- IV Co-ordination and Control

Meaning and Definition of Co-ordination – Concept – Importance - Principles of Co -ordination - Control – Steps in Control – Essentials of Effective Control – Reporting –Budgeting.

UNIT- V Leadership and Motivation

Leadership – Meaning – Definition – Objectives – Types - Styles – Motivation - Meaning – Definition – Objectives – Need and Importance – Merits and Demerits - Maslow" s need Hierarchy and McGregor Theories of Motivation.

CO.No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	Describe the primary functions of management and the role of managers, To analyze the planning process with company mission, vision, and values and to decision-making process.	**5**
CO-2	The students understand the concept of organizing various activities in business and selection procedure of staff members.	**4**
CO-3	To learn the coordination concepts and effective control techniques in business.	**5**
CO-4	Recognize the importance of employee motivation and how to promote the employees in companies	**5**

Text Book:

1.Dinkar Pagare,(2000), Business Management, Sultan Chand & Sons, New Delhi.

Reference Books:

1. S.A.Sherleker and V.S.Sherleker, (1979), Principles of Business Management, Himalaya publications, Mumbai.
2. Dr.C.B.Gupta, (1997), Business Management, Sultan Chand & Sons, New Delhi.
3. Principles of management – Tripathi & Reddy.
4. L.M.Prasad,(2000), Principles of Management, Margham Publications, Chennai

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DEPARTMENT OF COMMERCE (CA)

Semester : II **Hours/Week : 4**
Code : 18U2CCA02 **Credits : 3**

Allied – II: TALLY

Objectives:

1. To know the Accounting principles.
2. To Understand about Stock and Inventory

UNIT – I

Introduction to Tally: Opening Screen of Tally - Creating Company. Accounting Information: Menu Related to Accounts - Groups- Managing Groups - Expert Usage – Ledgers - Advanced Usage of Ledgers[Single ledgers] - Expert Usage of Ledgers[Multiple ledgers] - Ledgers for Illustration 3 - Cost Categories and Cost Centre - Cost Centres.

UNIT – II

Vouchers in Tally: Vouchers in Tally - Configuring Vouchers - Creating/Customizing Vouchers -Displaying Vouchers - Altering Vouchers - Duplicating a Voucher - Cancelling a Voucher - Pre- Defined Vouchers. Inventory Information: Stock Groups - Stock Categories - Stock Item – Godowns - Voucher Types – Units of Measures: Creating Units of Measures – Displaying Units of Measures – Altering Units of Measures.

UNIT – III

Pure Inventory Vouchers: Types of Inventory Vouchers - Purchase/Sales Orders and Invoices: Purchase Order - Sales Order - Viewing Order Position(Stock Summary) – Invoices. Reports: Trail Balance - Balance Sheet - Profit and Loss Account - Stock Summary - Ratio Analysis - Display Menu - Day Book - Bank Reconciliation Statement.

UNIT – IV

Important Features of Tally: Multiple Currencies & Foreign Exchanges - Rates of Exchange –Budget - Scenario Management - Security Control in Tally- Splitting Company Data - Group Companies - Tally Audit - Tally Interface - Tally ODBC - Backup & Restore. VAT Module: Justification of VAT - VAT Terminologies - Rate of VAT - Trader Identification Number -Computing VAT - How is Input Tax Credit Claimed? - Supply Chain Management - Enabling VAT in Tally - Ledgers Pertaining VAT – Ledger Creation- Stock Item Creation When VAT is Enabled - Voucher Entry When VAT is Enabled – VAT Reports. Service Tax: Enabling Service Tax in Tally - Ledgers Pertaining to Service Tax - Ledger Creation - Voucher Entry When Service Tax is Enabled - Service Tax Reports.

UNIT – V

Financial Statements – Trading Account – Profit and loss Account – Balance sheet – Accounts Books and reports – Inventory Books and Reports – Inventory Books and Receipts – exceptions reports – Statutory Reports – Payroll Reports – Trial Balance – Day Book – List of Accounts –Stock Summary.

Course outcome:

CO1: Student will do by their own create company, enter accounting voucher entries including advance voucher entries, do reconcile bank statement, do accrual adjustments, and also print financial statements, etc. in Tally ERP.9.

Text Book:

1. Namrata Agrawal, "Comdex Tally 9 Course Kit", Dreamtech Press, 2008.

Reference Book:

1. Tally 9.0 – A complete Reference – Tally Solutions (P) Limited.

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DEPARTMENT OF COMMERCE (CA)

Semester : II **Hours/Week :3**
Code : 18U2CCAP02 **Credits : 2**

Allied Practical – II: TALLY - LAB

Objective:

To learn the practical knowledge on tally subject.

1. Company Information**:**
   a. Company Creation
   b. Select company
   c. Shut company
   d. Alter company
   e. Split company data
   f. Backup and restore

2. Gateway of Tally**:**
   a. Accounts information
      i. Groups
      ii. Ledgers
      iii. Voucher types
   b. Inventory information
      i. Stock Group
      ii. Stock category
      iii. Stock item
      iv. Unit of measures
      v. Godown

3. Statutory and Taxation**:**
   a. Value added tax (VAT)
   b. Tax Deducted at source (TDS)
   c. Tax Collected at source (TCS)
   d. d. Services tax

4. Display:
   a. Trial balance
   b. Day Book
   c. Accounts Book
   d. Statement of Book
   e. Inventory Books
   f. Statement of Inventory
   g. Statutory information
   h. Statutory Reports
   i. Cash flow and Fund flow statements

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DEPARTMENT OF COMMERCE (CA)

Semester : II **Hours/Week : 1**
Code : 18U2ES01 **Credits : 1**

Value Education: ENVIRONMENTAL STUDIES

Objective :

To know the various environmental system.

UNIT - I

The multidisciplinary nature of Environmental studies: Definition, scope and importance of Environmental science, Need for public awareness. Natural Resources: General idea about the Natural resources, current status and types of resources –Forest resources, Water resources, Mineral resources, Food resources, Energy resources and Land resources. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT - II

Eco systems: Concept of an ecosystem, structure and function of an ecosystem, producers, consumers and decomposers, Energy flow in the ecosystem, Ecological successions, Food chains, Food webs and ecological pyramids. General idea about forest ecosystem, grassland ecosystem, desert ecosystems and aquatic ecosystem. Biodiversity and its conservations: Concept, origin, types, values, measurement and loss of biodiversity, Bio geographical classification of India, India as a mega-diversity nations, Hot spots of biodiversity, Endangered and endemic species of India and needs for conservation of biodiversity.

UNIT - III

Environmental Pollution –Definition and causes,effects and control measures of Air pollution , Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution and Necular pollution. Solid waste management: Casues, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies and Disasters management : Floods, earthquake cyclone and landslides.

UNIT- IV

Social Issues and the Environment : Unsustainable to sustainable development. Water conservation – rain water harvesting and watershed management. Resettlement and rehabilitation of people. Environmental ethics. Global Environmental problems (climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust). Wasteland reclamation, consumerism and waste products. General idea about Environmental laws: Environmental protection Acts like Air, Water, wildlife protection and forest conservation act and issues involved in enforcement of environmental legislation. Public awareness.

UNIT - V

Human population and the Environment: Population growth and explosion, variation among nations. Family welfare programmes, Enviornment and human health. Human Rights, Value Education, HIV/AIDS, Women and Child Welfare, Role of Information, Technology in Environment and Human Health. Field Wrok: Visit to a local area to document environmental assetsriver/forest/grassland/hill/mountain. Visit to a local polluted site-Urban / Rural / Industrial / Agricultural. Study of common plants, insects, birds. Study of simple ecosystems – pond, river, hill slopes, etc.

REFERENCE BOOKS:

1. Agarwal , K.C.2001 Environmental Biology, Nidi Publ.Bikaner.
2. Bharucha Erach, The biodiversity of India,Mapin publishing pvt.Ltd., Ahmedabed-380013, India, Email:mapin@icenet.net®
3. Brunner R.C., 1989, Hazardous waste Incinertion, McGraw Hill Inc.480p.
4. Clark R.S., Marine Pollution, clanderson press Oxford(TB)
5. Cunnigham, W.P.Cooper, T.H.Gorhani, E&Hepworth, M.T.2001, Environmental encyclopedia,Jaico Publ.House, Mumbai, 1196p.
6. De A.K. Environmental chemistry, Wiley Eastern Ltd.
7. Down to Earth, centre for science and Environmental®
8. Gleick, H.P.1993. Water in crisis, Pacific Institute for studies in Dev., Environment & Security. Stockholm Env. Institute. Oxford Univ.press.473p.
9. Hawkins R.E.Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay®
10. Heywood, V.h.&Watson, R.T.1995. Golbal Biodiversity Assessment. Cambridge univ.press 1140p.
11. Jadhav,H & Bhosale, V.M.1995. Environmental protection and Laws. Himalaya Pub. House, Delhi 284p.
12. Mckinney, M.L.& School, R.M.1996. Environmental Science systems& solution, Web enhanced edition.63p.
13. Mhaskar A.K.Matter HaZardours, Techno-Science Publications(TB).
14. Miller T.G.Jr.Environmental Science, Wadsworth publishing Co. (TB)
15. Odum, E.P.1971. Fundamentals of Ecology. W.B.Saunders Co.USA, 574p. 16.Rao M N. & Datta, A.K.1987. Waste water treatment. Oxford & Blph publ.
Co.pvt Ltd.345p.

Field work:

Field Visit to local areas to document environmental assets – River/ Forest/Waste Land/ Industrial Area.

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DEPARTMENT OF COMMERCE (CA)

Semester : II **Hours/Week : 1**
Code : 18U2VE02 **Credits : 1**

Value Education: VALUES FOR LIFE

Objective:

To know the meaning and essentials of life through the values which determine the happiness and success.

UNIT – I

Value: Introduction – meaning, objective, sources and types of values – Value inculcation- process, approaches and factors determining value inculcation.

UNIT – II

Personal Values : Self – Confidence- meaning, importance, some basic steps to develop self- confidence. Self-motivation- Dimension of self-motivation- objectives of self-motivation- steps to train self-motivation. Goal setting & Analysis – Types of goals – Guidelines to achieve specified goals.

UNIT – III

Moral & Spiritual Values: Faith – Detachment- Loyalty – Non-Violence – Obedience- Prayer – Purity- Renunciation and truthfulness.

UNIT- IV

Social Values: Accountability – Brotherhood- Concern for environment – Courtesy – Dialogue – Dutifulness – Forgiveness – Freedom – Friendship – Gratitude – Hospitality- Justice, Love – Patience – Responsibility – Service – sympathy – Team – Spirit – Tolerance- Sharing & Sportsman spirit.

UNIT- V

Behavioural values & Leadership Values: Manner- meaning, types and Basis of good manners, Table manners & Manner of tact and delicay. Behaviour and conduct on superior , through letters and in society.

Qualities of a good leader- Functions of an effective leadership – Factors to develop leadership skills.

Text Books :

1. Value for Life. --Dr.S.Ignachimuthu, S.J.- Better Yourself Book(2010).
2. Being Happy and Successful - Dr.S.Ignachimuthu, S.J.- Better Yourself Book.(2010).

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

Semester : III **Hours/Week : 5**
Code : 18U3CM05 / 18U3CC05 **Credits : 4**

BUSINESS LAW

Objective

To Gain a comprehensive knowledge on all aspects of Legal Rules as to Contracts and Sale of Goods.

UNIT – I Introduction to Business Law and Elements of Contract (14 hours)

Introduction – Definition and Scope of Business Law - Source of Business law – Nature and Kinds of Contract – Elements of a Valid Contract – Offer and Acceptance – Consideration – Essentials and Legal Rules for a Valid Consideration.

UNIT – II Performance of Contract (12 hours)

Contingent Contract and Quasi Contract – Performance of a Contract – Discharge of a Contract – Remedies for Breach of Contract.

UNIT – III Indemnity and Guarantee (13 hours)

Contract of Indemnity and Guarantee – Elements – Rights - Distinction - Discharge of Surety from Liability - Bailment and Pledge – Elements –Rights and Duties – Distinction.

UNIT – IV Contract of Agency (13 hours)

Agency – Creation of Agency – Kinds of Agent – Rights and Duties of Principal and Agent – Relationship between Principal and Third Parties – Termination of Agency.

UNIT – V Contract of Sale of Goods (13 Hours)

Sale of Goods – Sale and Agreement to Sell – Condition and Warranties – Transfer of Property – Transfer of Title – Performance - Remedies for Breach – Unpaid Seller - Rights of Unpaid Seller – Auction Sale – Rules Relating to Delivery of Goods.

CO. No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	To enabling the students to understand the basic concept of contract. To understand about the performance of contract.	**6**
CO-2	To gather knowledge on Bailment and pledge. To provide knowledge on Contract of Agency	**6**
CO-3	Students equip the knowledge on Sale of Goods.	**6**

Text Books:

1. N.D.Kapoor, (2013), Business Law, Sultan Chand & Sons, New Delhi.

Reference books:

1. M.C.Shukla, (2001), Commercial Law, S.Chand & Sons, New Delhi.
2. M.C.Kuchhal, (2005),Business Law, Vikas Publishing House Pvt Ltd, New Delhi.
3. P.C.Tulsian, (1998), Business Law, the McGraw Hill Companies, New Delhi.
4. R.S.N.Pillai and Bagavathi, (2007), Business Law, S.Chand & Co., New Delhi.

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DEPARTMENT OF COMMERCE (CA)

Semester : III **Hours/Week : 6**
Code : 18U3CM06 / 18U3CC06 **Credits : 4**

CORPORATE ACCOUNTING - I

Objective

To make the students to gain Accounting knowledge in company accounts.

UNIT – I Issue of Equity Shares

Shares – Meaning – Definition – Kinds – Issue Procedures – Methods – At Par, at Premium and at Discount – under subscription – over subscription – Forfeiture and Re-issue.

UNIT – II Issue of Preference Shares (15 hours)

Preference Shares – Meaning – Types – Provisions for Redemption of Preference Shares – Methods of Redemption.

UNIT – III Issue of Debentures (15 hours)

Debentures – Meaning – Classifications – Issue and Redemption of Debentures – Various Methods of Redemption.

UNIT – IV Valuation of Goodwill and Shares

Valuation of Goodwill and Shares – Need – Methods - Profits Prior to Incorporation.

UNIT – V Final Accounts of Companies

Preparation of Final Accounts of Companies – Managerial Remuneration.

CO.No	Upon Completion of this course , students will be able to	PSOs addressed
CO-1	Enabling the students to understand the features of Shares and its issue methods. Develop an understanding about issue and redemption of Preference Shares.	**7**
CO-2	To gather knowledge on Issue of Debentures and its redemption methods. To provide knowledge on Valuation of goodwill and shares.	**7**
CO-3	Students equip the knowledge on preparation of company final accounts in new format.	**1**

Note:

Theory 20% and Problems 80%

Text book:

1. Reddy & Murthy, Corporate Accounting, Margham Publications, Chennai.

Reference books:

1. R.L. Guptha and Radhaswamy, Advanced accountancy - Sulthan Chand & Sons, New Delhi.
2. S.P.Jain & K.L.Narang, Corporate Accounting, Kalyani Publishers, New Delhi.
3. S.N.Maheswari, Corporate Accounting, Vikas Publishing House, New Delhi.
4. Shukla, M.C.Grewal, T.S. Gupta, Advanced Accounts, S.Chand & Co.Ltd, New Delhi.

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DEPARTMENT OF COMMERCE (CA)

Semester : III **Hours/Week :4**
Code : 18U3CC07 **Credits : 4**

WEB DESIGNING

Objective

To enhance the knowledge on various transactions with data.

UNIT-I

Introduction to the Internet: Computer in business-Networking-internet-E- mail-resource sharing-Gopher-WWW-Usenet-Telnet-bullet in board service – WAIS. Internet technologies-modem-internet addressing-physical connections- telephone lines. Internet Browsers-Internet explorer-Netscape navigator.

UNIT-II

Introduction to HTML: Designing a home page-History of HTML-HTML generations-HTML documents-Anchor tag- Hyperlinks-sample documents. Head and body sections: Header section-title-prologue-links-colorful web page- command lines.

UNIT-III

Designing the body section: Heading printing-Aligning the headings-Horizontal rule-paragraph-tab settings-images and pictures-Embedding PNG format images. Ordered and Unordered list: Lists-Unordered lists-headings in a list-ordered lists-nested list.

UNIT-IV

Table Handling: Tables- Table creation in HTML-width of the table and cells-cells spacing multiple rows/columns-coloring cells-column specification. DHTML and style sheets: Defining styles-elements of styles-linking a style sheet to an HTML document –In-line styles-External and internal style sheets-multiple styles.

UNIT-V

Frames: Frameset definition-frame definition-nested framesets. A web page design project: frameset definition-animals-birds, fish Forms: Action attributes method and enctype attribute-drop down list.

Course outcomes:

CO1: Understand the basic concepts of Internet. Learnt about Mailing concepts and Intranet, learn to HTML AND XHTML concepts.

CO2: Understand how to using lists and backgrounds and hyperlink, creating a table formation forms, graphics.

Text book:

1. "World Wide Web Design with HTML" – C Xavier,Tata Mc Graw Hill Education Private Limited, New Delhi.

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DEPARTMENT OF COMMERCE (CA)

Semester : III **Hours/Week :3**
Code : 18U3CCP01 **Credits : 2**

Practical – I: WEB DESIGNING - LAB

Objective

To learn the fundamentals of HTML

PROGRAM LIST

1. Write a program using HTML heading tags.
2. Write a program for formatting text Bold, Italic, Undeline, and Strike through.
3. Write a program using HTML Anchor tag.
4. Write a program using HTML tag for paragraph, Line break, and Horizontal rule.
5. Create a program using Ordered and Unordered list.
6. Create a program using table.
7. Create a Frame using HTML tags.
8. Create a home page for your college in following format.

College Name	
Links	Information

9. Write a HTML code to create web pages that contains an image with an attractive background color, text color and back ground.
10. Write a program using HTML forms.

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DEPARTMENT OF COMMERCE (CA)

Semester : III **Hours/Week :6**
Code : 18U3STA05 **Credits : 4**

Allied – III: BUSINESS STATISTICS

Objective:

1. Students should understand the purpose of measuring central tendency.
2. Students should be able to define and calculate the range and the quartile deviation, but they should also realize that these are both relatively crude measures of variability.
3. Students should understand the Spearman correlation and how it differs from the Pearson correlation in terms of data that it uses and the type of relationship that it measures. And also know the index numbers and time series.

UNIT- I

Introduction- Collection and Tabulation of statistical data – Frequency distribution- Measure of central tendency- Mean, Median, Mode, harmonic mean and geometric mean, combined mean.

UNIT –II

Measures of dispersion – Range – Quartile deviation – mean deviation – Standard deviation and their co-efficient-Measure of skewness – Karlpearson and burley's co – efficient

UNIT – III

Correlation – Types of correlation – Measures of correlation – Karlpearson's co-efficient of correlation – Spearman rank correlations co-efficient- Simple regression analysis – Regression equation, fitting of regression lines- Relationship between regression co-efficient and correlation co-efficient.

UNIT – IV

Index number, Definition of index number, uses problems in the construction of index numbers-Simple and weighted index numbers- Chain and Fixed base index – Cost of living index numbers.

UNIT – V

Analysis of Time series – Definition – Components of Time series, Uses, Measures of secular trend, Measures of seasonal variation-Method of Simple average only.

Outcomes

Explain basic statistical concepts such as

1. Measures of central tendency
2. Measures of dispersion
3. correlation and regression analysis
4. Index number
5. Time series analysis

Note:

Distribution of Marks – Problems 80% and Theory 20%.

Text Book:

1 Business Statistics – P.A. Navanitham, Jai Publications Trichy.(2007).

Reference Books:

1. S.P.Guptha,(2000), Business Statistics, Sultan Chand and Sons, New Delhi.
2. R.S.N. Pillai and Bagavathi, (2006),Statistics, S.Chand & Co Ltd, New Delhi
3. P.R. Vittal, (1995), Business Mathematics, Margham Publication Chennai – 17.
4. S.Kalavathy (2006) Operating Research, Vikas Publishing House, New Delhi.

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DEPARTMENT OF COMMERCE (CA)

Semester : III **Hours/Week :2**
Code : 18U3CCS01 **Credits : 2**

SBEC: FINANCIAL SERVICES

Objective:

To Understand the Indian Financial System.

UNIT-I Introduction to Financial Service (4 hours)

Indian Financial Services – Introduction – Concept – Objectives.

UNIT-II Merchant Banking and its Functions (4 hours)

Merchant Banking – Definition – Objective - Scope – Functions.

UNIT-III Factoring in India (4 hours)

Factoring –Concept - Significance - Types of Factoring – Factoring in India.

UNIT – IV Leasing Finance (4 hours)

Lease Financing – Definition – Types – Merits and Demerits – Hire Purchase and Leasing Financing – Leasing in India.

UNIT-V Credit Rating Agencies (4 hours

Credit Rating – Meaning – Definition - Credit Rating Agencies – Functions – Benefits.

CO. No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	To understand the concept of financial services concepts and objectives. The studentswere understood the merchant banker and their functions.	5
CO-2	They enable to understand the factoring concepts in India. To Know the Concept of lease finance merits and demerits.	6
CO-3	Students understand the concept of credit rating agencies in financial services.	6

Text Book:

1. E.Gordan & K.Natarajan,(2013), Financial Marketing and Services, Himalaya Publishing House Mumbai.

Reference Books:

1. B.Santhanam,(2008), Financial Services, Margham, Publication, Chennai – 17.
2. P.N. Varshney & D.K. Mittal (2010), Indian Financial System, Sultan Chand & Sons New Delhi.

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DEPARTMENT OF COMMERCE (CA)

Semester : III **Hours/Week :2**
Code : 18U3BBN01 **Credits : 2**

NMEC: PERSONALITY DEVELOPMENT

Objective:

To Make aware about the importance of personality and development in the business world and make good relationship with others.

UNIT I Introduction to Personality Development:

The concept of personality - Dimensions of personality – Theories of Freud & Erickson-Significance of personality development. The concept of success and failure - Factors responsible for success – Causes of failure. SWOC analysis.

UNIT II Attitude & Motivation:

Attitude - Concept - Significance - Factors affecting attitudes - Positive attitude – Advantages –Negative attitude its Disadvantages - Concept of motivation - Significance – factors influencing motivation - Importance of self-motivation

UNIT III Self-esteem:

Term self-esteem - Symptoms - Advantages - Do's and Don" ts to develop positive self-esteem – Low self- esteem - Symptoms - Personality having low self esteem - Positive and negative self esteem.

UNIT IV Other Aspects of Personality Development:

Conflict – types of conflicts - and Stress Management - Leadership –styles - qualities of a successful leader – Character building -Team-work – Time management.

UNIT V Employability Quotient:

Resume building- The art of participating in Group Discussion – Facing the Personal (HR & Technical) Interview -Frequently Asked Questions - Psychometric Analysis - Mock Interview Sessions.

CO.No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	To provide orientation about personality development, To give them Motivation and to create knowledge about motivation theories.	**4**
CO-2	To understand the importance of self esteem and its positive and negative.	**7**
CO-3	To enable them to develop leadership qualities and Time management.	**7**
CO-4	To create awareness about Employability Quotient of GD, HR & Technical Interview	**8**

Text Books:

1. Hurlock, E.B (2006). Personality Development, 28th Reprint. New Delhi, Tata McGraw Hill.
2. Stephen P. Robbins and Timothy A. Judge(2014), Organizational behavior 16th Edition: Prentice Hall.

Reference Books:

1. Andrews, Sudhir. How to Succeed at Interviews. 21st (rep.) New Delhi.Tata McGraw-Hill 1988.
2. Heller, Robert.Effective leadership. Essential Manager series. Dk Publishing, 2002
3. Hindle, Tim. Reducing Stress. Essential Manager series. Dk Publishing, 2003
4. Lucas, Stephen. Art of Public Speaking. New Delhi. Tata - Mc-Graw Hill. 2001

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DEPARTMENT OF COMMERCE (CA)

Semester :IV **Hours/Week : 5**
Course Code : 18U4CM09 / 18U4CC08 **Credits : 4**
Core Course: IX / VIII

COMPANY LAW AND SECRETARIAL PRACTICE

Objective

To gain knowledge about company law and secretarial practices.

UNIT – I Introduction to Company (13 hours)

Meaning – Definition – Features – Kinds - Important highlights of Companies Act, 2013 – Promoters – Functions – Duties of Promoters - Incorporation – Procedures – Duties of Secretary regarding incorporation of a company.

UNIT – II Formation of a Company (14 hours)

Memorandum of Association (MoA) - Meaning – Purpose - Contents – Alteration of Memorandum – Doctrine of Ultravires - Articles of Association (AoA)– Meaning – Purpose - Contents – Alteration of Article – Relationship between Articles and Memorandum - Procedures to be followed by the secretary.

UNIT – III Prospectus and Underwriting (13 hours)

Prospectus – Definition - Contents – Statement in Lieu of Prospectus – Consequences of Misstatements in a Prospectus – Duties of Secretary – Underwriting Commission and Brokerage – Difference between Underwriter and Brokers.

UNIT – IV Managerial Persons and Meetings (13 hours)

Directors and Secretary – Qualification and Disqualification – Appointment – Removal - Powers, Duties and Liabilities of Directors and Secretary - Meetings – Kinds of company Meetings – Agenda – Minutes – Resolutions - Duties of Secretary regarding Meetings.

UNIT – V Winding Up of a Company (12 hours)

Winding up – Meaning – Modes of winding up – Compulsory winding up by the court – Voluntary winding up – types of Voluntary winding up – Members voluntary winding up – Creditors voluntary winding up – winding up subject to supervision of the court - Consequences of winding up (General) – Latest Amendments as per companies Act 2013 & 2015.

Co.No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	To make the students understand the significant provisions of the Companies Act and various kinds of companies. The student should have thorough knowledge on formation of company, documents required and Acts pertaining to it.	**8**
CO-2	To make them in secretarial aspects of dividend distribution and statutory provisions relating to the Company Law. The students were able to know the secretarial duties regarding maintenance of statutory and other books.	**6**
CO-3	To train the students in secretarial practical aspects of drafting of minutes and notices.	**7**

Text Book:

1. N.D. Kapoor (2015), Company Law and Secretarial Practice, Sultan Chand & Sons, New Delhi.

Reference Books:

1. P.P.S. Gogna, (2016),Company Law, S.Chand & Co Ltd, New Delhi.
2. M.C.Shukla (2010), Mercantile Law, S.Chand & Co Ltd, New Delhi.
3. M.C.Kuchhal (2006), Secretarial Practice, Vikas Publications
4. J. Santhi (2015), Secretarial Practice. Margham Publications, Chennai.

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DEPARTMENT OF COMMERCE (CA)

Semester : IV **Hours/Week : 6**
Course Code : 18UCM10 / 18U4CC09 **Credits : 4**
Core Course: X / IX

CORPORATE ACCOUNTING – II

Objective

To gain Accounting knowledge in Amalgamation , Banking, Insurance, Holding Companies.

UNIT – I Amalgamation Absorption and External Reconstruction (18 hours)

Amalgamation as per AS-14 – Meaning – Definition – Purchase Consideration - Methods – Accounting for Amalgamation and Absorption and External Reconstruction.

UNIT – II Alteration of Share Capital (16 hours)

Alteration of Share Capital- Meaning - Different ways of alteration share capital - Internal Reconstruction – Liquidator" s Final Statement of Accounts.

UNIT – III Bank Accounts (New Format) (16 hours)

Accounts of Banking Companies – Profit and Loss Account (Form – B, Schedule – III) – Balance Sheet (Form – A , Schedule – III)

UNIT – IV Insurance Accounts (New Format) (15 hours)

Insurance – Meaning – Types – Final Accounts of Life Insurance Companies – Revenue Account and Balance sheet.

UNIT – V Holding Company Accounts (15 hours)

Accounts of Holding Companies – Meaning - Capital profit – Revenue profit – Calculation of Minority Interest – Cost of control or Goodwill – Preparation of Consolidated Balance sheet (Excluding Inter-Company Holdings).

CO. No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	Enable the students to understand about amalgamation, absorption and external Reconstruction. Enable the students to gain an idea of liquidation of companies	**1**
CO-2	To make them aware about accounts of banking companies. Keep them aware about accounts of insurance companies.	**5**
CO-3	To introduce and develop knowledge of holding companies accounts.	**1**

Note:

Theory 20% and Problems 80%

Text book:

1. Reddy & Murthy, Corporate Accounting, Margham Publications, Chennai.

Reference books:

1. R.L. Guptha and Radhaswamy, Advanced accountancy - Sulthan Chand & Sons, New Delhi.
2. S.P.Jain & K.L.Narang, Corporate Accounting, Kalyani Publishers, New Delhi.
3. S.N.Maheswari, Corporate Accounting, Vikas Publishing House, New Delhi.
4. Shukla, M.C.Grewal, T.S. Gupta, Advanced Accounts, S.Chand & Co.Ltd, New Delhi.

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DEPARTMENT OF COMMERCE (CA)

Semester : IV **Hours/Week :4**
Code : 18U4CC10 **Credits : 4**

VISUAL PROGRAMMING

Objective:

To learn software project using visual programming.

Unit – I

What is Visual Basic – Features of VB – Developing an Application – Creating an Application: Objectives – The Tool Box – Project Explorer- The Properties Window – The Form Window- Understanding Projects – Forms and Controls: Objectives – The Form- The working with a Control – Opening the Code Window- Variables in VB .

Unit –II

Data Types in VB - Writing Code in VB – The Code Window – The Anatomy of Procedure – Editor Features – The For …Next Statement - The DecisionMaker … If – Loop – DO.. While Loop – Select Case … End Select.

Unit – III

Working with Files – VB File System Controls – Types of Files – Working with Files.Menus: Building the User Interface – All about Menus – MDI Applications - Why MDI Forms – Features of an MDI Form – Loading MDI Forms and Child Forms – The Active Form property.

Unit – IV

Debugging methods- Common Dialog Control - File Open Dialog Box – Save Dialog Box – Changing the color - Coding. Introduction to Databases – What is Database - Working with Data Control – The Data Control – The Bound Controls– Caution.

Unit – V

DAO : The Jet Database Engine – Functions of the Jet Database Engine – SQL – The DAO Object Model. ActiveX: What is ActiveX - Why ActiveX – ActiveX and Web Pages.

Course outcomes:

CO1: Demonstrate knowledge of programming terminology and how applied using Visual

CO2: Develop a Graphical User Interface (GUI) based on problem description

CO3: Develop an Event Planning Chart based on problem description so as to define the processing that is to occur based on specific events

CO4: Develop an Algorithm to verify processing is accurate, Develop and debug applications using Visual Basic 2010

Text Book:

1. Programming with Visual Basic 6.0 – Mohammed Azam – Vikas Publishing House (P) Ltd.

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DEPARTMENT OF COMMERCE (CA)

Semester : IV **Hours/Week :3**
Code : 18U4CCP02 **Credits : 2**

Practical – II: VISUAL BASIC - LAB

Objective:

To impart the practical knowledge on visual basics.

List of Practical

1. Construction of an Arithmetic Calculator (Simple)
2. Working with List Box and Combo Box Control
3. Working with MDI Form
4. Working with Rich Text Box Control
5. Create an Animation Using picture box control.
6. Working with File Open Dialog Box
7. Working with Save Dialog Box
8. Color changing control using horizontal scroll bar
9. Simple database connection
10. Simple ActiveX control creation

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DEPARTMENT OF COMMERCE (CA)

Semester : IV **Hours/Week :6**
Code : 18U4STA04 **Credits : 4**

ALLIED-IV: FUNDAMENTALS OF OPERATIONS RESEARCH

Objective

- To learn Matrix about addition, subtraction, multiplication, Identity and Inverse Matrices, Determinants of a Square Matrix.
- To find a formula for the general term in the sequence.
- Define event, outcome, trial, simple event, sample space and calculate the *probability* that an event will occur.
- Develop *linear programming* models for simple problems.
- Minimize or maximize the cost or the time of *transportation*.

UNIT – I

Matrix: Definitions – Operations on matrix – Determinant of matrix- Inverse of a matrix (Ad-joint method only) – Application: Solving of linear equations – Matrix inverse method; Crammers method.

UNIT – II

Sequence and Series- Arithmetic progression and Geometric progression- Interpolation: Binomial expansion method- Newton" s forward and backward method- Lagranges method.

UNIT-III

Probability: Definition – Addition and Multiplication theorems- Conditional probability- (Simple problems only).

UNIT –IV

Linear programming- Formulation of LPP- Solution of LPP- Advantages and limitations of LPP-Graphical methods- Simplex method.

UNIT – V

Transportation Problem – North West Corner Rule – Matrix Minima (OR) Least Cost Method – Vogel's Approximation method- MODI Method- Assignment problem- Balanced –Unbalanced (Hungurian) Assignment Method.

Course outcomes:

Explain basic operations research Concepts such as

- Matrix
- Sequence and Series
- Probability
- Linear programming problems
- Transportation Problem

Note:

Distribution of marks – Problem 80% and Theory 20%

Text Book:

1. Business statistics-P.A.Navanitham,. Jai Publications Trichy, (2007).

Reference Books:

1. Business statistics and operation Reasearch-S.P Guptha, Dr P.A.Guptha, DR.Manmohan, Vikas Publications, Chennai, (2008).
2. Business mathematics- Mr.vittal, s. Chand sons, New Delhi, (2009).

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DEPARTMENT OF COMMERCE (CA)

Semester : IV **Hours/Week :2**
Code : 18U4CCS02 **Credits : 2**

SBEC: STOCK MARKET OPERATIONS

Objective: To Provide exposure to various avenues of investments in capital markets.

UNIT – I Introduction to Capital Market (4 hours)

Capital Market – Need and Importance – Structure – Primary and Secondary Market

UNIT – II Primary Market (4 hours)

New Issues Market – Functions – Methods of Issue.

UNIT – III Secondary Market (4 hours)

Stock Market – Functions of Stock Exchanges.

UNIT – IV SEBI & Its Procedures (4 hours)

OTCEI – NSE – Listing of Securities – Procedures, Advantages of Listing – Screen Based Trading – Demat Accounts – Mechanics of Trading in Stock Exchanges.

UNIT – V Brokers (4 hours)

Registration of Stock Brokers – Role of Merchant Bankers – Kinds of Brokers, Speculation.

CO.No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	To know the concept of capital market and structure of capital market.	**9**
CO-2	To learn the functions of primary market and methods of new issue market	**9**
CO-3	The students understand the functions of stock market. To understand the procedure of OTCEI and NSE.	**5**
CO-4	To enable the concept of stock brokers and role of merchant bankers.	**5**

Text book:

1. V.A. Avadhani,(2015), Indian Capital Market, Himalaya Publishing House, Mumbai.

Reference books:

1. E. Gordon and K.Natarajan,(2013), Financial Market and Services, Himalaya Publishing House, Mumbai.
2. Preeti Singh,(2016), Investment Management, Himalaya Publishing House, Mumbai.

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DEPARTMENT OF COMMERCE (CA)

SEMESTER:IV **HRS/Week:2**
Code: 18U4BBN02 **Credits : 2**

NMEC – II: SERVICE MARKETING

Objective:

To provide an in-depth appreciation and understanding of the unique challenges inherent in managing and delivering quality services.

UNIT - I

Importance of services sector – Nature and types of services – Difference between services and goods marketing – services marketing triangle.

UNIT - II

Environment for services marketing – macro and micro environments – understanding service customers – models of service consumer behavior – customer expectations and perception – service quality and GAP model.

UNIT – III

Market segmentation and selection – Service market segmentation – Targeting and Positioning.

UNIT- IV

Services marketing Mix – Need for expanded marketing mix – planning for services offer – pricing – promotion and distribution of services – management of people – process and physical evidence – matching demand for and supply of services.

UNIT- V

Service marketing applications – Marketing of financial, hospitality, hospital, tourism and educational services – international marketing of services and GATS.

CO. No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	To understands how the services sector operates and marketing the services to customers. To make them familiarize the environment for services marketing and quality of services measurements.	**8**
CO-2	To help to gather knowledge customer expectations and perception models of service consumer behavior. To appreciate the dealing of extended services marketing mix and the promotion and distribution of services.	**9**
CO-3	To provide an in-depth appreciation and understanding the service marketing applications of hospitality, hospital, tourism and educational services.	**8**

Text book:

1. Sharma D.D. Marketing Research, Himalaya Publishing House, New Delhi.

Reference Books:

1. Christopher, H. Lovelock, Services Marketing, Pearson Education India
2. Adrian Payne, Services Marketing, PHI
3. Zeithaml, V.A. & M.J. Bitner, Services Marketing
4. Rao, Services Marketing, Pearson Education India
5. Sinha, P.K. and Sahoo S.C. Services Marketing, HPH.

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DEPARTMENT OF COMMERCE (CA)

Semester :V **Hours/Week :6**
Code : 18U5CC11 **Credits : 5**

COST ACCOUNTING

Objective: To make the students to gain accounting knowledge in management Concerns.

UNIT – I Introduction to Cost Accounting

Cost Accounting – Meaning, Scope, Objectives – Cost Concepts and Classification - Advantages and Limitations – Difference Between Cost Accounting and Financial Accounting – Elements of Cost – Preparation of Cost Sheet.

UNIT – II Material Management

Material Management – Purchase Procedure – Various Stock Levels – Economic Order Quantity – Bin Card and Stores Ledger – Pricing of Issues – FIFO, LIFO, Simple Average and Weighted Average Methods.

UNIT – III Computation of Labour Cost

Labour Cost – Importance – Various Methods of Labour Cost Control – Methods of Wage Payment – Various Incentive Schemes – Labour Turnover.

UNIT – IV Apportionment of Overheads

Overheads – Classification – Apportionment of Overheads – Redistribution of Overheads – Absorption of Overheads – Calculation of Machine Hour Rate.

UNIT – V Job Costing and Process Costing

Methods: Job Costing - Contract Costing - Process Costing – Normal Loss - Abnormal Loss and Abnormal Gain – Joint Product and By Products.

CO.No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	Aimed to familiarize the concept of cost accounting. Helps to gather knowledge on material control with pricing methods.	**1**
CO-2	Develop the knowledge about remuneration and incentives. To helps to know the overheads summary and machine hour rate.	**9**
CO-3	Facilitate to gather knowledge in Process costing and its allied concepts.	**1**

Note:

The question may be asked from Problem at 80% and Theory at 20% in each unit.

Text Book:

1. T.S Reddy & Hari Prasad Reddy,(2010),Cost Accounting, Margham Publications, Chennai-17.

Reference Books:

1. A.Murthy & S.Gurusamy, (2010), Cost Accounting Tata McGraw Hills New Delhi.
2. R.S.N Pillai & Bagavathi,(2005),Cost Accounting, Sultan Chand & Sons, New Delhi.
3. S.P Jain & Narang, (2010),Cost Acounting - Kalyani Publishers, Ludhiana.

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DEPARTMENT OF COMMERCE (CA)

Semester :V **Hours/Week :6**
Code : 18U5CC12 **Credits : 5**

INCOME TAX LAW AND PRACTICE - I

Course Objective:

- To help them to apply the provisions and complete incomes under various heads.
- To familiarize the students with recent amendments in Income Tax. On successful completion of this course, the student should be well versed in the prevailing act.

UNIT – I Introduction to Income Tax

Introduction to Income Tax Act,1961 – Meaning – Objectives – Assessee – Person – Previous Year – Assessment Year – Income – Casual Income – Gross Total Income – Total Income.

UNIT – II Total Income and Exempted Income

Basis of Charge – Scope of Total Income – Residence and Tax Liability – Incomes which do not Form Part of Total Income.

UNIT – III Computation of Salary Income

Heads of Income – Income Under Salaries – Definition, Features – Computation of Salary Income – PF – Allowances – Perquisites – Other Items Included in Salary – Deduction Under Salary – Tax – Rebate, Relief of Income Tax.

UNIT – IV Computation of House Property Income

Income from House Property – Definition – Basis of Charge – Exempted HP Incomes – Computation of Income from HP – Gross Annual Value – Net Annual Value – Deductions – Let Out and Self – Occupied Houses.

UNIT – V Computation of Business and Professional Income

Definition of Business and Profession - Profits and Gains Business and Profession — Income Chargeable under Profits and Gains – Deductions – Specific Allowances – Deemed Profit – Computation of Business Income and Professional Income – Depreciation.

CO.No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	To introduce the basic concept of Income Tax. In order to familiarize the different know-how and heads of income with its Components.	**10**
CO-2	It helps to build an idea about income from house property.	**10**
CO-3	It gives more idea about the income from business or profession	**10**
CO-4	Make the students familiarizes with the concept of depreciation and its provisions.	**2**

Note:

The Questions may be asked from the Problems at 80% and Theory at 20% in each unit.

Text Book:

1. V. P. Gaur & Narang, (2010),Income Tax Law and Practice - Kalyani Publishers, Ludhiana.

Reference books:

1. A. Jayakumar & N. Hariharan (2005), Income Tax Law and Practice, Vijay Nicole Imprints (P)Ltd. Chennai.
2. Dinkar Pagare, (2011), Income Tax Law and Practice, Sultan Chand & Sons, New Delhi.
3. T.S.Reddy & Hari Prasad Reddy, (2010), Income Tax Theory, Law & Practice, Margham Publications, Chennai – 17.

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DEPARTMENT OF COMMERCE (CA)

Semester :V **Hours/Week :6**
Code : 18U5CC13 **Credits : 4**

AUDITING

Objective:

To make the students to know the role of Auditor in Company and his Qualifications.

UNIT – I introduction to Auditing (10 hours)

Introduction – Meaning and Objectives of Audit – Difference Between Auditing and Accountancy –Audit Note Book - Kinds of Audit – Advantages and Limitations of Audit – Audit Programmers and Working Papers.

UNIT – II Internal Control (10 hours)

Internal Control – Meaning and Object – Internal Check – Meaning and Object – Internal Control Regarding Cash Purchases, Sales, Payment of Wages.

UNIT – III Verification of Voucher (10 hours)

Vouching – Meaning – Objects – Features of Good Voucher – Procedure and Importance –Vouching of Cash Transactions – Verification of Assets and Liabilities.

UNIT – IV Qualification of Auditors (10 hours)

Auditor – Qualification, Functions - Appointment, Disqualification, Removal, Duties, Power, Liabilities and Remuneration - Audit of Share Capital - Share Transfer.

UNIT – V Specialized Audit (10 hours)

Specialized Audits - Charitable Institutions, Club, Cinema Theatre, Educational Institutions, Hospital, Hotel.

CO.No	Upon Completion of this course, students will be able to	PSOs Addressed
CO-1	To understand the Advantages and Limitations of audit and various notebooks and working papers used by the Auditor of accounts. To apply your auditing knowledge to undertake auditing processes in Internal Control and Internal Check.	1
CO-2	The students were able to understand the knowledge in Vouching of cash transactions and verification of assets and liabilities. To familiarize with provisions of the Companies Act relating to the Qualification appointment, Disqualification, Removal, and Duties etc,	9
CO-3	The students were able to recognize to apply your auditing knowledge to undertake auditing processes in a variety of professional settings.	2

Text Book:

1. S.Sundharsanam, (2005), Practical Auditing S.Chand & Co Pvt Ltd. New Delhi.

Reference books:

1. Dinker Pagare,(2006),Auditing, Sultan Chand & Sons, New Delhi.
2. B.N. Tandon, (2000), Principles of Auditing, S.Chand & Co New Delhi.
3. Batlibai,(2000), Principles of Auditing, S.Chand & Co, New Delhi.

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DEPARTMENT OF COMMERCE (CA)

Semester :V **Hours/Week :6**
Code : 18U5CC14 **Credits : 4**

E-COMMERCE

Objective

To adequate knowledge about business by electronic system.

UNIT – I

Introduction to Electronic Commerce : What is Electronic Commerce – Benefits of Electronic Commerce – Impact of Electronic Commerce – Classification of Electronic Commerce – Application of Electronic Commerce Technologies. Business Models : What is Business Model?.

UNIT – II

Electronic Data Interchange : Conventional Trading Process – What is EDI? – Building Blocks of EDI Systems – Value Added Networks – Benefits of EDI – Application of EDI. Network Infrastructure: Local Area Networks – Ethernet LAN– Wide Area Networks – Internet – TCP/IP Reference Model – Domain Name Systems – Internet Industry Structure.

UNIT – III

Information Distribution and Messaging: File Transfer Protocol Application – Electronic Mail – World Wide Web Server – What is HTTP? – Web Servers Implementations. Information Publishing Technology: Information Publishing – Web Browsers – Hyper Text Markup Language – Common Gateway Interface – Multimedia Content – Other Multimedia Objects – Virtual Reality Modeling Language.

UNIT – IV

Electronic Payment Systems: Introduction to Payment Systems – Online Payment Systems – Pre-paid Electronic Payment Systems – Post-paid Electronic Systems – Requirements Metrics of a Payment System. Influence on Marketing : Product – Physical Distribution – Price –Promotion – Marketing Communication – Common e-Marketing Tools.

UNIT – V

Search Engines and Directory Services : Introduction – Information Directories – Search Engines – Search Engine Marketing – Formulating a Good Search Strategy. Internet Advertising: Internet Advertising –emergence of the Internet as a Competitive Advertising Media – Models of Internet Advertising – Banner Advertisements – Sponsoring Content – Screensavers and Push Broadcasting – Corporate Web Site – Interstitials – Superstitials – OPT-INs - Weaknesses in Internet Advertising .

Course outcomes:

CO1: Explain the components and roles of the Electronic Commerce environment, explain how businesses sell products and services on the Web

CO2: Describe the qualities of an effective Web business presence and E- Commerce payment systems.

Text Book :

1. „Electronic Commerce' – Framework, Technologies and Applications by Bharat Bhasker, 3rd Edition –TATA Mc GRAW HILL – 2009.

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DEPARTMENT OF COMMERCE (CA)

Semester :VI **Hours/Week :6**
Code : 18U6CC15 **Credits : 5**

MANAGEMENT ACCOUNTING

Objective:

To provide the students an understanding of the application of accounting techniques for management and well equipped with decision making as managers.

UNIT – I Introduction to Management Accounting

Management Accounting – Meaning – Objectives – Nature and Scope – Distinguish Between Management Accounting with Cost Accounting and Financial Accounting.

UNIT – II Ratio Analysis and Fund Flow Analysis

Ratio Analysis – Uses and Limitations of Ratio Analysis - Fund Flow Analysis and Cash Flow Analysis (New Format).

UNIT – III Budgetary Control

Budgets and Budgetary Control – Preparation of Production Budget, Purchase Budget, Sales Budget, Cash Budget and Flexible Budget.

UNIT- IV Marginal Costing

Marginal Costing – Absorption Costing – P/V Ratio – BEP and Margin of Safety – Practical Application of Marginal Costing Technique to Different Situations.

UNIT- V Standard Costing

Standard Costing – Meaning – Material – Labour – Overheads Variances.

CO.No	Upon Completion of this course, students will be able to	PSOs addressed
CO-1	To enlighten the students thought and knowledge on management Accounting concepts. Helps to give proper idea on preparation of Ratios and its views. Also know the concept of cash flow and funds flow in new format.	**1**
CO-2	To provide knowledge about Budget control keeping in mind the scope of the concept.	**1**
CO-3	To develop the know-how and concept of Marginal costing with practical problems	**1**
CO-4	To equip the knowledge on analysis of Material, Labor and overheads.	**3**

Note:

The Questions may be asked from the Problems at 80% and Theory at 20% in each unit.

Text Book:

1. T.S.Reddy and Y.Hari Prasad Reddy, (2009), Management Accounting, Margham Publication Chennai – 17.

Reference books:

1. A.Murthy & S.Gurusamy, (2008), Management Accounting , Tata McGraw Hills Publisher New Delhi.
2. .S.N.Maheswari, (2009), Management Accounting, Sultan Chand & Sons, New Delhi.
3. R.K. Sharma,(2009), Management Accounting, Kalyani Publisher Noida.

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DEPARTMENT OF COMMERCE (CA)

Sem: VI **Hrs/Week : 6**
Code : 18U6CC16 **Credits : 5**

INCOME TAX LAW AND PRACTICE –II

Objective:

To help the students understand and apply concepts and provisions of Income Tax Act, 1961.

UNIT – I Capital Gain

Capital Gain – Basis of Charge – Capital Assets – Meaning and Definition - Transfer of Capital Assets – Types of Capital Gain – Exemptions – Computation of Capital Gains – Capital Loss – Tax on Capital Gains.

UNIT – II Income from Other Sources

Income from Other Sources – General Incomes – Specific Incomes – Deductions in Computing Income from Other Sources – Computation of Income from Other Sources.

UNIT – III Set Off and Carry forward of Losses

Aggregation of Income – Deemed Incomes – Deduction from Gross Total Income – Set Off and Carry Forward of Losses.

UNIT – IV Computation of Tax Liability

Computation of Tax Liability – Rules of Income Tax – Surcharge – Tax Free Incomes – Tax Rebates – Tax Relief – Computation of Tax Liability of Individual and Firms.

UNIT – V Assessment Procedure

Income Tax Authorities – Powers – Assessment Procedure – Types of Assessment – Appeal – E-Filing of Returns - Revisions.

CO. No	Upon Completion of this course, students will be able to	PSOs Addressed
CO-1	To develop an idea about capital gain among students, to enlighten the concept of income from other source.	**10**
CO-2	Enabling the students to have a fair idea on set-off and carry forward of losses, To determine the concept of assessment of individual.	**10**
CO-3	To equip the students with thoughts and points on assessment of firms.	**10**

Note:

The Questions may be asked from the Problems at 80% and Theory at 20% in each unit.

Text Book:

1. V.P.Gaur & Narang, (2010),Income Tax Law and Practice - Kalyani Publishers, Ludhiana.

Reference Books:

1. A.Jayakumar & N. Hariharan (2010), Income Tax Law and Practice, Vijay Nicole Imprints (P) Ltd. Chennai.
2. Dinkar Pagare, (2010), Income Tax Law and Practice, Sultan Chand & Sons, New Delhi.
3. N.Hariharan (2010), Income Tax Law and Practice, Tata McGraw Hills Publishing House, New Delhi.
4. T.S.Reddy & Hari Prasad Reddy, (2010), Income Tax Theory, Law & Practice, Margham Publications, Chennai – 17.

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DEPARTMENT OF COMMERCE (CA)

Semester :VI **Hours/Week :6**
Code : 18U6CC17 **Credits :4**

ENTREPRENEURSHIP DEVELOPMENT

Objective :

To Inculcate the students a sense of becoming Job providers rather than Job seeker.

UNIT – I Introduction to Entrepreneurship

Entrepreneurship – Meaning – Nature and Characteristics of an Entrepreneur – Qualities, Traits - Types and Functions of an Entrepreneur – Role of Entrepreneur in Economic Development.

UNIT – II Entrepreneurial Motivation

Meaning Theories of Motivation – Maslow and Mcgregor – Motive for Starting an Enterprise – Entrepreneurial Behaviour- - Entrepreneurial motivation.

UNIT – III Establishing an Enterprise

The Start up Process – Project Identification and Selection – Project Formulation – Assessment of Project Feasibility, Marketing Survey, Risk Analysis, Break-Even Analysis – Preparation of Project Report, Selection of Site – Legal Considerations – Basic Start-up Problems.

UNIT – IV Institutional Finance to Entrepreneurs

National Small Industries Corporation (NSIC), Small Industries Development Organization (SIDO), Small Scale Industries and Bank of India (SIDBI),District Industrial Centres (DIC), Tamilnadu Industries Investment Corporation (TIIC) and Commercial Banks.

UNIT – V ED Programmes

Entrepreneurial Development Programmes in India – Role of SISI, SIPCOT and SIDBI - Incentives and Subsidies.

CO. No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	To aiming to develop students about Entrepreneurship development, To create awareness on various Entrepreneurship Development Programmes	**4**
CO-2	To enable them to understand project formulation To familiarize the students with EDP schemes	**8**
CO-3	To give an introduction about MSME, EDI and other training institutes in Entrepreneurship	**8**

Text book:

1. C.B. Gupta, (2009), Entrepreneurial Development, S.Chand & Co, New Delhi.

Reference books:

1. Renu Arora & S.K.Sood,(2008), Fundamentals of Entrepreneurship and Small Business , Kalyani Publishers, New Delhi.
2. S. Khanga,(2007), Entrepreneurial Development, S.Chand & Co Ltd, New Delhi.

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DEPARTMENT OF COMMERCE (CA)

Semester :VI **Hours/Week :6**
Code : 18U6CCP03 **Credits : 4**

COMMERCE PRACTICAL

Objective: To give Practical Knowledge about the various field of commerce.

UNIT – I Business

1. Preparation of Invoice, Receipts, Voucher, Delivery Challan, Entry Pass, Gate Pass - Debit and Credit Notes.
2. Preparation of Transaction from the Receipts, Vouchers - Credit Notes and Debit Notes.
3. Preparation of Application for Shares and Allotment - Letter for Share – Transfer Forms.

UNIT – II Banking

4. Drawing, Endorsing and Crossing of Cheques - Filling up of Pay in Slips – Demand Draft Application and Preparation of Demand Drafts.
5. Making Entries in the Pass Book and Filling up of Account Opening Forms for SB Account, Current Account and FDR" s.
6. Drawing and Endorsing of Bills of Exchange and Promissory Notes.
7. National Electronic Funds Transfer (NEFT) - Real Time Gross Settlement Systems (RTGS) - Immediate Payment Service (IMPS)

UNIT – III Co – Operative Societies

7. Filling up of Application Forms for Admission to Cooperative Societies. Filling up Loan Application Forms and Deposit Challan.
8. Filling up Jewel Loan Application Form, Procedure for Releasing of Jewellery in Jewel Loans and Repayment.

UNIT – IV Secretarial practice and Stores control

9. Preparation of Agenda and Minutes of Meetings-both General Body and Board of Directors.
10. Using Bin Card and Inventories. 11.Using Cost Sheets.

UNIT – V Insurance, Advertising and Income Tax

12. Filling up of an Application Form for LIC Policy, Filling up of the Premium Form - Sending Premium Notice and Filling up the Chelan for Remittance Receipt for the Premium. Procedure for Lapsed Policy and Procedure for Settling Account while the Insured is Alive or Dead.
13. Preparation of Audit Programmes.
14. Preparation of Audit Report and Replies to Audit Objections.
15. Preparation of an Advertisement Copy, Collection of Advertisement in Dailies and Journal, Critically Evaluating the Advertisement Copy.
16. Filing up e- Returns and Application for Permanent Account Number.

CO.No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	Aiming to know the various kinds of Business forms and applications, To learn and gain knowledge on banking practices and its various types of forms/ Challans.	**2**
CO-2	Students gathering knowledge on co-operative banks	**5**
CO-3	To gathering knowledge on material control in stores and types of records.	**3**
CO-4	Students equip the knowledge on Advertising, advertising copy and Income Tax practices.	**9**

NOTE:

Students may be requested to collect original or Xerox copies of the documents and affix then on the record note book after having filled up. Drawing of the documents should not be insisted.

Distribution of marks:

Practical 75% and Record Note Book 25%

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DEPARTMENT OF COMMERCE (CA)

ELECTIVE COURSE FINAL YEAR B.COM. (CA)

LIST OF ELECTIVE COURSE (Choose one from each group)		
SEMESTER – V Group – A	18U5CCE01	1. Modern Banking
	18U5CCE02	2. Office Organization
	18U5CCE03	3. Fundamentals of Insurance
SEMESTER – VI Group – B	18U5CCE04	1. Marketing Management
	18U5CCE05	2. Financial Management
	18U5CCE06	3. Human Resource Management

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DEPARTMENT OF COMMERCE (CA)

Semester :V **Hours/Week : 6**
Code : 18U5CCE01 **Credits : 4**

ELECTIVE COURSE (GROUP –A)
MODERN BANKING

Objective:

To know the important and recent concepts of Banking and its legal aspects.

UNIT – I

Definition of banker and customer – Relationships between banker and customer – special feature of RBI, Banking regulation Act 1949. RBI credit control Measure – Secrecy of customer Account.

UNIT – II

Types of accounts – types of customers – opening and closure of accounts.

UNIT – III

Bills of exchange and cheque – essential – types of crossing – endorsement.

UNIT -IV

Payment of cheques statutory protection duties to paying banker and collective banker - refusal of payment cheques Duties holder & holder in due course.

UNIT – V

Loans and advances against different type of securities (exclude case laws).

CO.No	Upon Completion of this course, students will be able to	PSOs Addressed
CO-1	To help to gather knowledge on banking and financial system in India, To provide knowledge about types of customers and opening of various bank accounts.	**5**
CO-2	To familiarize the Negotiable Instruments and its alterations, To enable them to understand the duties of paying and collecting bankers.	**5**
CO-3	To create awareness about modern banking services like E-Banking, M-Banking and Internet Banking	**5**

Text Book:

1. Indian Modern Banking System – Gordan Natrajan, Sultan Chand & Sons, New Delhi(2012).

Reference Books:

1. Banking law and practice in India – M.L.Tandon, Tata McGrew Hill, New Delhi(2009).
2. Banking law and practice – Varshney and Maheswari, Sultan Chand Publications, New Delhi, (2010).

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DEPARTMENT OF COMMERCE (CA)

Semester :V **Hours/Week : 6**
Code : 18U5CCE02 **Credits : 4**

ELECTIVE COURSE (GROUP –A)
OFFICE ORGANISATION

Objective:

To enable the students to understand management and office methods, Environment procedures.

UNIT – I Introduction to Office Concept

Modern Office – Meaning, Importance – Function – Location of Office – Office Layout – Open and Private Offices – Office Environment, Lighting, Ventilation Freedom From Noise and Dust, Sanitary, Security and Secrecy Problems.

UNIT – II Organization Chart

Office Organisation – Importance – Types – Organisation Chart – Office Manuals – Delegation of Authority and Responsibility – Centralization vs Decentralization.

UNIT – III Office System

Office Systems - Flow of Work – Role of Office Manager – Office Forms – Forms of Control – Departmentation - Forms of Designing – Control of Correspondence – Handling Inward and Outward Mails.

UNIT – IV Filing System

Stationery – Importance – Control of Stationery Cost – Purchasing – Stationery Supplies – Filing – Importance – Functions – Characteristics of Good Filing System – Indexing – Meaning, Importance and kinds.

UNIT – V Office Equipments

Leadership – Types – Motivation Theory - Office Furniture – Types of Furniture – Office Machine and Equipments – Object of Mechanization – Types Office Machines – Uses of Computers in Office – Criteria for Selection.

CO.No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	To make them understand office management and duties of an office manager, To give an idea about proper filing and indexing of office documents.	**1**
CO-2	To understand the principles of record management and different types of records in business organization,	**4**
CO-3	To enable them to aware about safety hazardous and steps to improve office safety.	**7**
CO-4	To introduce different measures of office work.	**8**

Text Book:

1. S.P. Arora, (2009), Office Organisation, Vikas Publishing House New Delhi.

Reference Books:

1. R.S.N Pillai and Bagavathi, (2005), Office Management, S.Chand C. Ltd, New Delhi.
2. C.B.Gupta, (2005), Business Management , Sultan Chand & Co, New Delhi.
3. S.A. Sherlakar, (2009), Principles of Business Management, Himalaya Publishing House, Mumbai.

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DEPARTMENT OF COMMERCE (CA)

Semester :V **Hours/Week : 6**
Code : 18U5CCE03 **Credits : 4**

FUNDAMENTALS OF INSURANCE

Objective: To enable the students to know the fundamentals of Insurance.

UNIT – I Introduction to Insurance

Definition of Insurance – General Principles of Insurance – Types of Insurance – Life, General, Fire and Marine – Difference Between Life and General Insurance.

UNIT – II Life Insurance

Life Insurance – Objects – Different Types of Life Policies – Annuities – Formation of Life Insurance Contacts – Assignment and Nominations – Lapses - Revival of Policies

UNIT – III Claims

Surrender Value – Paid Up Value – Loans – Claims – Procedure for Claims – Settlement of Claims – Third Parity Claims.

UNIT – IV Marine Insurance

Marine Insurance – Functions – Marine Perils – Types of Marine Policies – Clauses in General Use – Warranties and Conditions – Proximate Cause – Subrogation and Conciliation – Re-Insurance – Double Insurance – Types of Marine Losses.

UNIT – V Fire Insurance

Fire Insurance – Characteristics – Subject Matter – Fixation of Premium – Fire Waste – Hazards of Fire – Physical and Moral Types of Fire Policies – Cover Note Surveys and Inspection – Average Clause – Re-Insurance and Renewals – Causal Proxima.

CO.No	Upon Completion of this course , students will be able to	PSOs addressed
CO-1	Aiming to know the different kinds of insurance, Helps to gathering knowledge on life insurance policies and its practices.	9
CO-2	To know the knowledge on claiming and settlement procedures, To helps to know the importance of marine insurance and its types.	9
CO-3	It helps the students to know the fire insurance and inspection.	9

Text Book:

1. M.N. Mishra,(2000), Insurance Principles and Practice, S.Chand & Co Ltd, New Delhi.

Reference Books:

1. A.Murthy (2000), Elements of Insurance, Margham Publication, Chennai – 17.
2. M.Radhasamy &Vasudevan,(2005), Insurance, Sultan Chand & Co Ltd, New Delhi.
3. Periyasamy,(2009), Principles and Practice of Insurance, Himalaya Publishing House, New Delhi.

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DEPARTMENT OF COMMERCE (CA)

Semester :VI **Hours/Week : 6**
Code : 18U6CCE04 **Credits : 4**

ELECTIVE COURSE (GROUP –B)
MARKETING MANAGEMENT

Objectives:

- To understand the concepts and practices of marketing management techniques.
- To know the practical knowledge of marketing the products.

Unit - I

Evolution of Marketing Management: Definition and concept of marketing, Evolution and Development of Marketing, Role and Significance of Marketing, Recent Trends in Marketing.

Unit – II

Marketing Management: Concept and Role of Marketing Management - functions of Marketing Management. Product planning and development – introduction of a new product – Product Life Cycle.

Unit – III

Marketing Environment – Concept, Definition, Approaches, factors effecting on Marketing, Environment, Consumer Markets and buying behavior.

Unit – IV

Market Segmentation – Importance elements of market Segmentation – strategies. Pricing – meaning – types – determinants of pricing.

Unit – V

Marketing Research – Importance in Marketing decisions – marketing of industrial products – marketing of consumer products – marketing of services – marketing of agricultural products.

CO.No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	To develop an idea about marketing and its functions, To enhance the students on consumer behaviour	**9**
CO-2	To familiarize students about product and its classifications	**9**
CO-3	To make them understand pricing policies	**9**
CO-4	To introduce the concept of marketing research.	**9**

Text Book:

1. Marketing – Rajan Nair, Sultan Chand and Sons.

Reference Books:

1. Marketing Management – Sherlekar.S.A.
2. Marketing Management – V.S.Ramasamy and Namakumari -Macmillan.

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DEPARTMENT OF COMMERCE (CA)

Semester :VI **Hours/Week : 6**
Code : 18U6CCE05 **Credits : 4**

ELECTIVE COURSE (GROUP –B)
FINANCIAL MANAGEMENT

Objectives:

To communicate knowledge on the fundamentals of finance function in business and to develop skills in financial analysis and decision making.

UNIT- I Introduction to Financial Management

Meaning – Definition – Scope - Objectives of the Financial Management – Profit Maximization Vs. Wealth Maximization - Functions of FM - Role of Financial Manager in Financial Management.

UNIT- II Capital Structures and Leverages

Capital structure - Meaning – Definition - Optimum Capital Structures – Factors determining capital structures –Theories of capital structures – Leverage Meaning – Types of leverages.

UNIT -III Cost of Capital

Cost of capital – Meaning – Definition – Importance - Factors determining Cost of capital - Cost of equity – cost of preference capital – Cost of debt – Cost of retained earnings – weighted Average (or) composite cost of capital (WACC)

UNIT- IV Dividend Policies

Introduction Dividend policies – Meaning – Types of Dividends - Factors determining dividend policy - Dividend Theories – Walter's model - Gordon's Model – Modigliani Miller Hypothesis Model.

UNIT- V Working Capital Management

Working capital - Meaning - Definition – Sources of Working Capital - Types of working capital – working capital operating cycle – Factors influencing working capital – Forecasting of working capital requirements - Cash Management – Receivables Management.

CO.No	Upon Completion of this course , students will be able to	PSOs Addressed
CO-1	To understand and appreciate the role of the finance in an organization, To familiarize the students the techniques to be employed for investing the funds.	8
CO-2	The student should have thorough knowledge on capital structure theories and leverages, To identify sources from where funds can be raised keeping in mind the cost and risk involved.	9
CO-3	To make them familiarize in financial aspects of Working Capital Management and Management of Cash, Inventory and Accounts Receivables.	5

Text Book:

1. S.N.Mageswari, (2009), Financial Management, Sultan Chand and Sons, Delhi.

Reference Books:

1. Khan- M.Y. and Jain P.K, (2003)Financial Management Text and Problems, Tata McGraw Hill Co., New Delhi.
2. Prasanna Chandra, (2005) Financial Management Theory and Practice – Tata Mc Graw Hill Co., New Delhi.
3. Pandey I.M., (2008), Financial Management, Vikas Publishing House Pvt. Ltd, New Delhi.

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DEPARTMENT OF COMMERCE (CA)

Semester :VI **Hours/Week : 6**
Code : 18U6CCE06 **Credits : 4**

ELECTIVE COURSE (GROUP –B)
HUMAN RESOURCES MANAGEMENT

Objectives:

To understand and the nature of human resources and its significance to the organization and to learn about the various mechanisms in HRM.

UNIT - I Introduction to HRM

Meaning – Definition – Nature – Importance of Human Resources Management – Objectives of HRM - Differences between Personnel Management and HRM – Environment of HRM – Human resource planning.

UNIT - II Recruitment and Selection

Recruitment - Meaning – Sources of recruitment – Factors Determining in Recruitment - Selection – Methods of Selection – Tests – Types of tests – interview - types of interview - techniques in selection and placement.

UNIT – III Training and Performance Appraisal

Training Meaning – Definition – Importance – Methods of Training – Performance appraisal – Meaning – Methods – Promotion – Need for promotion – Criteria for promotion - Transfer – Need – Demotion – Suspension – Dismissal of services.

UNIT - IV Motivation

Motivation – Meaning and Definition – Nature – Characteristics – importance – Process of Motivation – Financial and Non Financial Incentives – Theories of Motivation – Maslow" s Need Hierarchy Theory – McGregor" s X and YTheory – McClelland's Need theory.

UNIT – V Labour Relation

Labour Relation – Functions of Trade Unions – Forms of collective bargaining-Workers" participation in management – Types and effectiveness – Industrial Disputes and Settlements (laws excluded) Human Resource Audit – Nature – Benefits – Scope – Approaches.

CO.No	Upon Completion of this course, students will be able to	PSOs Addressed
CO-1	To aiming to enable the students in Human Resources Management, To introduce the students know about Recruitment and selection process.	5
CO-2	Helps to gathering knowledge Training methods and its importance. To equip the students on motivation factors.	4
CO-3	To facilitate the knowledge about performance appraisal and different methods.	4

Text Book:

1. L.M. Prasad, (2010) Human Resource Management, Sultan & Chand, New Delhi.

Reference books:

1. Jayasankaran.J, (2009), Human Resouce Management, Margham Publications, Chennai.
2. Biswanath Ghosh, (2002), Human Resource Development and Management, Vikas Publishing House Pvt Ltd, New Delhi.
3. Aswathappa, (2009), Human Resources Management, Tata McGraw-Hill Education (India) Ltd, New Delhi.

Selvamm Arts and ScienceCollege (Autonomous), Namakkal

DEPARTMENT OF COMMERCE (CA)

QUESTION PAPER PATTERN

Time: 3 Hrs. ***Maximum: 75 Marks***

Section – A (1 x 10 =10 Marks)

(Answer All questions)

Section – B (2 x 5 = 10 Marks)

(Answer All questions)

Section – C (5 x 5 = 25 Marks)

(Answer All questions, Choosing one from each set)

Section – D (3 x 10 = 30 Marks)

(Answer any THREE questions)

Selvamm Arts & Science College (Autonomous)

Nationally Re-Accredited at Grade "A" by NAAC

Affiliated to Periyar University, Salem

Department of English UG Syllabus

B.A., English Literature

Choice Based Credit System (CBCS)

(Effective From 2018 - 2019)

Vision

To enrich the young minds with great literary works and enhance the moral values of the students.

Mission

To impart education with the virtues of ethical value, sense of equality and peace in young minds and enable them to reach intellectual maturity to become inspired leaders nationally and globally.

Programme Outcomes (UG)

PO 1: Communicate Effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.

PO 2: Environment Concern - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Department of English

Course Title and Credits (2018 - 2019)

Sem	Part	Course Code	Course Title	Hrs./ Wk	Cr	Marks		Total Marks
						Int	Ext	
Semester -I								
I	I	18U1FTA01	Foundation Tamil - I	5	4	25	75	100
	II	18U1FEN01	Foundation English - I	5	4	25	75	100
	III	18U1EN01	Grammar and Usage	6	4	25	75	100
		18U1EN02	Fiction	6	4	25	75	100
		18U1ENA01	Allied I - Social History of England - I	6	4	25	75	100
	IV	18U1VE01	Value Education - I Yoga & Practice	2	1	25	75	100
		Total		30	21	-	-	600
Semester – II								
II	I	18U2FTA02	Foundation Tamil - II	5	4	25	75	100
	II	18U2FEN02	Foundation English - II	5	4	25	75	100
	III	18U2EN03	Indian Writing in English	5	4	25	75	100
		18U2EN04	Prose	6	4	25	75	100
		18U2ENA02	Allied – II – Social History of England - II	5	4	25	75	100
	IV	18U2ES01	Environmental Studies	2	1	25	75	100
		18U2VE02	Values for life	2	1	25	75	100
		Total		30	22	-	-	700
Semester – III								
	I	18U3FTA03	Foundation Tamil - III	5	4	25	75	100
	II	18U3FEN03	Foundation English - III	5	4	25	75	100
		18U3EN05	History of English	6	4	25	75	100

III	III		Language					
		18U3EN06	Literary Forms & Terms	5	4	25	75	100
		18U3ENA03	Allied – III - History of English Literature – I	5	4	25	75	100
	IV	18U3ENS01	SBEC – Phonetics and Transcription	2	2	25	75	100
		18U3ELN01	Non-Major Elective Course	2	2	25	75	100
			TOTAL	30	24	-	-	700
Semester – IV								
IV	I	18U4FTA04	Foundation Tamil - IV	5	4	25	75	100
	II	18U4FEN04	Foundation English - IV	5	4	25	75	100
	III	18U4EN07	American Literature	6	4	25	75	100
		18U4EN08	Poetry	5	4	25	75	100
		18U4ENA04	Allied – IV - History Of English Literature - II	5	4	25	75	100
	IV	18U4ENS02	SBEC- Media Communication	2	2	25	75	100
		18U4ELN03	Non-Major Elective Course	2	2	25	75	100
			TOTAL	30	24	-	-	700
Semester – V								
V	III	18U5EN09	Shakespeare	5	4	25	75	100
		18U5EN10	Literary Criticism	5	4	25	75	100
		18U5EN11	Twentieth Century Literature	5	4	25	75	100
		18U5EN12	English Language Teaching	5	4	25	75	100
		18U5EN13	Commonwealth Literature	5	4	25	75	100
		18U5EN14	Indian Diasporic Literature	5	4	25	75	100
			Total	30	24	-	-	600
Semester – VI								
		18U6EN15	British Drama	5	4	25	75	100

VI	III	18U6EN16	African Literature	5	4	25	75	100
		18U6EN17	Translation Studies	5	4	25	75	100
		18U6EN18	English For Competitive Exam	4	4	25	75	100
		18U6EN19	Business English	4	3	25	75	100
		18U6ENP01	Communication Skills (Practical)	5	3	25	75	100
	IV	18U6STE01	Skills (LSRW) Through English	2	1	25	75	100
	V	18U6EX01	Extension Activities*		2			100
			Total	30	25	-	-	700
Total Credits				180	140			4000

*Note: Extension Activities Camp for 80 Hours from Outside the Campus.

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Programme Specific Outcomes

PSO1	Understand major and minor forms of literature. Have developed interest in literature and language and Enjoy reading the short stories, poems, novels and dramas
PSO2	Know the literary theories, terms and concepts in Criticism and Appreciate the literary works
PSO3	Understand the structure and function of grammatical units and Know the use of language at semantic and syntactic levels
PSO4	The students could improve vocabulary and Use English effectively in formal and informal situations.
PSO5	Attempt creative writings and Know phonological and morphological aspects of English
PSO6	Understand the values of literature in life and Understand different cultures of the times
PSO7	Know various genres in English literature like Indian English literature, British and literature and American literature.
PSO8	Develop verbal and non-verbal skills of communication.
PSO9	Are able to get the jobs in industry, government, schools and offices
PSO10	Have enriched confidence to appear for competitive examinations.

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Core I – Grammar and Usage

Semester : I **Credits: 4**

Course Code :18U1EN01 **Hours/Week: 6**

Objectives :

1. To learn the basic grammar of English Language and effectively use English in all contexts
2. To identify the errors of students' usage and to avoid them in the communication

Unit I

Parts of speech

Sentence (Parts & types)

Properties of Noun: Gender, Number, Person, Case.

Unit II

Tenses

Voices

Verb: Regular, Irregular, Transitive, Intransitive, Finite, Non Finite, Gerunds, Participles, Infinite.

Unit III

Degrees of Comparison

Direct and Indirect speech

Unit IV

Articles

Sentence Pattern

Auxiliary verb

Unit V

Idioms and Phrases

Figure of Speech

Spotting Errors

Course Outcomes

CO. NO	Upon completion of this course , the will be able to	PSOs addressed
CO-1	Understand the differences between spoken and written English	1
CO-2	Understand the factors that influence use of grammar and vocabulary in speech and writing	2,9
CO-3	Understand the different ways in which grammar has been described.	10 , 1

Text Books:

1) The Complete Grammar – Michael Strumpf, Good Will Publishing House
2) Essential English Grammar – Raymond Murphy, Cambridge University Press
3) Wren & Martin – English Grammar & Composition
4) Modern English – M. Krishnasamy – Macmillan Publications

Selvamm Arts and Science College (Autonomous), Namakkal

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Core II – Fiction

Semester : I **Credits: 4**

Course Code : 18U1EN02 **Hours/Week: 6**

Objectives :

1. On successful completion of the paper, the students should have a knowledge of novels and novelists in general.

2. Students are expected to acquire the knowledge of fictional mode, with special reference to characterization, plot, structure and techniques.

Unit - I

Jane Austen (1775 – 1817) - Pride and Prejudice

Unit - II

Charles Dickens (1780 – 1806) - Great Expectations

Unit - III

Thomas Hardy (1840 –1928) - The Mayor of Casterbridge

Unit - IV

Chinua Achebe (1930 – 2013) - Arrow of God

Unit – V

Robert Louis Stevenson (1850 -1894) - Dr. Jekyll & Mr. Hyde

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Recognize and understand the variety of stylistic choices that authors of fiction make within given forms and how form influences meaning.	4,8
CO-2	Articulate ways in which the text contributes to self- understanding.	9
CO-3	Engage, through the text, unfamiliar and diverse cultures, experiences and points of view, recognizing the text as a product of a particular culture and historical moment.	5,6
CO-4	Understand the text within the context of a literary tradition or convention.	9

Text Books:

1) Dickens, Charles - Great Expectations, Macmillan Publications.
2) Austen, Jane Pride and Prejudice, Macmillan Publications.
3) Hardy, Thomas, The Mayor of Casterbridge, Orient Blackswan Classics.
4) Achebe, Chinua, Arrow of God, Penguin Books Publications.
5) Stevenson, Robert Louis,

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

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Core III – Indian Writing in English

Semester : II **Credits: 4**

Course Code : 18U2EN03 **Hours/Week: 6**

Objectives :

1. To acquiring the knowledge of Indian Writing in English.
2. To learn our Indian culture, identity, socialist view of Indian writers.

Unit I & II Poetry

Rabindranath Tagore [1861 - 1941] - Gitanjali (First 5 poems) (Detailed)

Sri Aurobindo [1872 - 1950] - Tiger and Deer (Non-Detailed)

Nissim Ezekiel [1924 - 2004] - Night of the Scorpion (Detailed)

A.K Ramanujan [1929 – 1993] - Obituary (Non-Detailed)

Vikram Seth [1952 till] - Homeless (Non-Detailed)

Unit III Prose

Ananda Commarasamy [1877 – 1947] - The Dance of Shiva

Unit IV - Drama (Detailed)

Girish Karnad [1938 –] - Nagamandala

Unit V - Novel

Amitav Ghosh - The Hungry Tide

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Students would know about Indian writers and their works.	5
CO-2	Students can use their skill to write poems.	7
CO-3	To learn the literary, societal, cultural, biographical and historical background of the greatest English writings penned by Indian Authors.	5

Text Books:

1) Poetry Down the Ages, Orient Blackswan.
2) The Twentieth Century Indian Poets-ed R. Parthasarathy
3) Karnad, Girish, Three plays, New Delhi.
4) The Golden Treasury and Indian Poetry
5) Collected Poems and Plays of Rabindranath Tagore, Macmillan Publication.

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Department of English

B.A English

Core IV – Prose

Semester : II **Credits: 4**

Course Code : 18U2EN04 **Hours/Week: 6**

Objective :

1. To introduce the possibilities of different prose styles in English literature

Unit - I

Francis Bacon [1561-1626] - Of Marriage & Single Life

- Of Parent & Children

Unit - II

Joseph Addison [1672 - 1719] - Sir Roger at the Theatre

Richard Steele [1672 - 1729] - The Trumpet Club

Unit - III

Jonathan Swift (1667 - 1745) - The Battle of Books

Oliver Goldsmith [1728 - 1774] - The Man in Black

Unit - IV

Charles Lamb [1775 - 1834] - Poor Relations

Ralph Waldo Emerson [1803 - 1882] - The American Scholar

Unit - V

Rudyard Kipling [1865 - 1936] - Values In Life

Robert Lynd [1879 - 1949] - In Praise of Mistakes

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Students Would have familiar with a selection of important works with in English-language prose literature.	7
CO-2	Students would have knowledge of different types of English-language prose.	10
CO-3	Students are able to explain how different types of prose convey stories or meanings.	7
CO-4	Students are familiar with and able to use the English-language terminology.	6

Text Books:

1) M.G. Nayar, A Galaxy of English Essayist.
2) An Anthology of English Prose, Oxford University Press
3) Bacon's Essays, Macmillan Publication.
4) An Anthology of American Literature of the *Nineteen*th Century, S. Chand.

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Department of English

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Core V – History of English Language

Semester: III **Credits: 4**

Course Code: 18U3EN05 **Hours/Week: 6**

Objective:

1. To introduce students to learn the structure of language, with analytical approach.

Unit I (Introduction)

General character of English

The Indo-European Family of Language

The Germanic Family

English in the Germanic Family

Unit II (Vocabulary)

The influences of Latin

Greek influence

French Influences on the Vocabulary

Scandinavian Elements

Words from Outside of Europe

Unit III (Spelling and Pronunciation)

History of Spelling and Pronunciation

'Standardizing' of Spelling and Pronunciation

The Development of Dictionaries

Influence of Spelling on Pronunciation

Unit IV (Individuals and the Making of Modern English)

Bible Translations

Shakespeare's Influence

Milton and the English Language

Some Poets and the Language

Unit V (The English Language To-Day)

The Search for a Standard Influence

American Influence

Other Influences on English

English as a World Language

Course Outcomes

CO. NO	**Upon completion of this course , the students will be able to**	**PSOs addressed**
CO-1	Understand how the English language has changed over time from its origins to the present day	3
CO-2	Understand the relationship between the history of the English language and social and political processes	7
CO-3	Understand methods of enquiry into English language, viewed diachronically and synchronically with awareness of the limitations of any one approach	2

Text Book:

1. C.L. Wrenn - The English Language

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

CORE VI – Literary Forms and Terms

Semester: III **Credits: 4**

Course Code: 18U3EN06 **Hours/Week: 6**

Objectives:

1. To introduce to the different literary forms to inculcate in them a proper understanding and appreciation of the most important forms and to enable them to differentiate one from the other

2. To help the students identify the nuances of English literary forms.

Unit - I: Poetry

Poetry-Different types of Poetry

Unit - II: Prose

Essay, Short story, Biography and Autobiography

Unit - III: Drama

Characteristics of Drama, Revenge Tragedy, Comedy, One –Act play, Tragicomedy, Climax, Anti-climax

Unit - IV: Fiction

Characteristics of Fiction, Historical Novel, Regional Novel

Picaresque Novel, Detective Novel, Science Fiction

Unit - V

Terms:

Allegory, Blank verse, Oxymoron, Simile, Metaphysical conceit, Metaphor, Stanza

Anti-climax, Stream of Consciousness, Characterization

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Students should be familiar with representative literary and cultural texts within a significant number of historical, geographical, and cultural contexts.	10
CO-2	Students should be able to apply critical and theoretical approaches to the reading and analysis of literary and cultural texts in multiple genres.	6
CO-3	Students should be able to write analytically in a variety of formats, including essays, research papers, reflective writing, and critical reviews of secondary sources.	1

Text Books:

1. An Introduction to the Study of English Literature - W.H. Hudson
2. A Background to the Study of English Literature, Macmillan-B Prasad
3. A Glossary of Literary Terms –M.H Abrams.

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Core VII – American Literature

Semester: IV **Credits: 4**

Course Code: 18U4EN07 **Hours/Week: 6**

Objectives:

1. To introduce to the students the important literary works in American Literature
2. To enhance the learner's analytical acumen to critically study American Literature

Unit - I Detailed Poetry

Robert Frost [1874 - 1963] – Mending Wall

Sylvia Plath [1932-1963] – Daddy

Unit - II Detailed Prose

Thoreau [1817 - 1862] - Where I lived and What I lived for

Henry James [1843-1916] - Art of Fiction

Unit - III Drama

Eugene O Neill [1888 - 1953] - The Emperor Jones

Arthur Miller [1915-2005] - Death of a Salesman

Unit - IV Short Story

Edgar Allen Poe (1809-1849) - The Tell -Tale heart

O'Henry [1862-1910] - The Gift of the Magi

Unit - V Fiction

Mark Twain [1835 - 1910] - The Adventures of Tom Sawyer

Richard Russo [1949 - till] - Empire Falls

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Identify and discuss strengths, limitations, and cultural assumptions of various literary forms practiced in America through the mid-nineteenth century	1
CO-2	Identify and discuss the roles which gender, race, age,class,ethnicity, wealth, poverty,and geography have played increating American literature.	2,6
CO-3	Identify and discuss the issues, conflicts, preoccupations, and themes of the various literatures of America	3

Text Book:

1. An Anthology of American Literature, S. Chand
2. An Anthology of American Literature of the *Nineteenth* Century, S. Chand
3. Albee, Edward- Death of a Salesman, Penguin Books.
4. Mark Twain, Adventures of Tom Sawyer Signets Classics.
5. Twentieth Century Verse, Macmillan Publication.

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Department of English

B.A English

Core VIII – British Poetry

Semester: IV **Credits: 4**

Course Code: 18U4EN08 **Hours/Week: 5**

Objectives:

1. To introduce them to different uses of poetic language, literary style and poetic devices
2. To make derive the moral values and the inspiring thoughts expressed in those poems.

Unit - I

Edmund Spenser [1552-1599] - Protholamion

Philip Sydney [1554-1568] - Astrophel and Stella

Unit – II

John Donne [1552- 1631] - The Canonization

George Herbert [1593-1633] - Pulley

Unit - III

John Milton [1608-1674] - Paradise Lost Book - IX

Andrew Marvell [1621-1678] - The Night

Unit – IV

Thomas Gray [1716-1771] - Elegy Written in a Country Churchyard

S.T.Coleridge [1772- 1834] - The Ancient Mariner

Unit – V

Robert Browning (1812 - 1889) - My Last Duchess

Matthew Arnold (1822 - 1888) - Dover Beach

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Understand the common techniques underlying free verse and traditional forms of poetry	6
CO-2	Identify personal experiences that can be used when writing poems	7
CO-3	Understand the basic terminology and practical elements of poetry.	5,1

Text Books:

1. John Milton- Paradise Lost Book – IX, Oxford University Press, 2007

2. Poetry Down the Ages- Orient Black Swan, 2009

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

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Core - IX Shakespeare

Semester: V **Credits: 4**

Course Code: 18U5ENO9 **Hours/Week: 5**

Objectives:

1. To introduce the versatile genius to Shakespeare.
2. To develop the students' interest and have to appreciation of Shakespeare's plays

Unit - I Detailed

Henry IV – Part I

Unit - II Detailed

Macbeth

Unit – III Non-Detailed

The Tempest

Unit – IV Non-Detailed

A Midsummer Night's Dream

Unit – V

Shakespearean Audience and Theatre

Fools and Clowns

Women in Shakespeare

Shakespeare's sonnets: 1, 60, 116,130,144,

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Gain an insight into the age of Shakespeare .	10
CO-2	Understand the themes and techniques of Shakespearean plays and sonnets.	2
CO-3	Analyse Shakespeare's works critically.	10

Text Book:

1. William Shakespeare- New Clarendon ShakespeareOn Shakespeare – A.C. Bradley
2. Complete Works of Shakespeare, Oxford & IBH Publication

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Core - X Literary Criticism

Semester: V **Credits: 4**

Course Code: 18U5EN10 **Hours/Week: 5**

Objective:

1. To expose students to the various trends and schools of literary criticism

Unit – I

Aristotle's Poetics

Aristotle's Views on The Characters of Tragedy (Chapter II)

Unit – II

Sir Philip Sidney (1554-1586) : An Apology for Poetry

Unit – III

Dr. Johnson (1709-1784) : Preface to Shakespeare

Unit – IV

Matthew Arnold (1822-1888) : The Study of Poetry

Unit – V

T.S. Eliot (1888-1965) : Tradition and the Individual Talent

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Identify major theoretical/critical movements and theorists, as well as primary concepts with which they are associated	2
CO-2	Define and apply specific theoretical concepts, theories, and terms to literary and cultural texts	2
CO-3	Evaluate and analyze strengths and limitations of critical/theoretical arguments -	6
CO-4	Examine historical contexts for the development of contemporary theory and criticism	6

Prescribed Text:

1. Enright Chickra: Critical Essays
2. V.S. Sethuraman & S. Ramasamy: English Critical Tradition
3. David Lodge: (ed.) Modern Criticism and Theory- A Reader (Pearson, 2005)

References Books:

1. An Anthology of The English Literary Criticism– V.S. Seturaman & S. Ramaswami, volume 1& 2.
2. M.S. Nagarajan, English Literary Criticism and Theory, Orient blackswan pvt. Ltd.

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Department of English

B.A English

Core - XI Twentieth Century Literature

Semester: V **Credits: 4**

Course Code: 18U5EN11 **Hours/Week: 5**

Objectives:

1. To imbibe the knowledge of current authors and their works
2. To simulate the ideas in the new trends of Modern Literature

Unit – I **Poetry Detailed**

T.S. Eliot (1888 - 1965) - The Waste Land

Poetry Non-Detailed

W.B. Yeats (1865 - 1939) - The Second Coming

D. H. Lawrence (1885 - 1930) - The Snake

Wilfred Owen (1893 - 1918) - Strange Meeting

Unit – II **Drama Detailed**

T. S. Eliot (1888 - 1965) - The Cocktail Party

Unit – III **Drama Non-Detailed**

Oscar Wilde (1854 - 1900) - An Ideal Husband

Unit – IV **Prose**

E. M. Forster (1879 - 1970) - Does Culture Matter?

D. H. Lawrence (1885-1930) - Why the Novel Matters?

Unit – V **Fiction**

Bama (1958 -) - Karukku

Arundhati Roy (1961 -) - The God of Small Things

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Understand the relationship between literary texts and social structures,	1
CO-2	Students would know key texts in English since the end of the twentieth century,	2
CO-3	Students would know how to read texts closely,	7
CO-4	Students would know how to read both formal and thematic aspects of texts in relationship to larger cultural and historical movements.	4

Text Books:

1. 20th Century Verse, An Anglo-American Anthology, Macmillan Ltd.
2. Eliot. T.S., The Cocktail Party, Orient Black Swan
3. Twentieth Century English Essayist, Orient Longman
4. Bama, Karukku, Oxford University Press.
5. Roy, Arundhati, The God Of Small Things, Harper Perennial Publications

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Core-XII English Language Teaching

Semester: V **Credits: 4**

Course Code: 18U5EN12 **Hours/Week: 6**

Objectives:

1. To Introduce English Language Teaching To The Students Of B.A. (English).
2. To Facilitate The Easy Grasp Of The Theories Of Language Teaching And Learning.
3. To Imbibe The Methods And Approaches Of Language Teaching.

Unit - I

The Importance of Learning English Problems And Prospects For The Teacher Of English

Problems of The Second Language Learner

Unit - II

Teaching The Four Skills

Listening, Speaking, Reading, and Writing.

Unit - III

Methods and Principles of Teaching

Teaching Vocabulary

Teaching Prose

Teaching Poetry

Unit - IV

Teaching Pronunciation

Teaching Grammar

Teaching Composition

Evaluation

Unit – V (Practical)

Use of Audio – Visual Aids In Language Teaching.

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	To have the knowledge to evaluate the nature, source, correctness, reliability and validity of knowledge,	10
CO-2	To comprehend the methods related to the production of scientific knowledge	4
CO-3	To be conscious of the social and professional responsibilities,	9
CO-4	To recognize themselves as an individual, to use their creative and strong sides,	4

Prescribed Text:

1. Introduction to English Language Teaching, Geetha Nagarajan (Oxford University Press, Ghosh, Sastri, Das)
2. Teaching And Learning English, M.L.Tickoo , Orient Blackswan, Publication.
3. Jack C Richards And Theodore S Rodgers, Approach And Methods Of Language Teaching

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Core-XIII Commonwealth Literature

Semester: V **Credits: 4**

Course Code: 18U5EN13 **Hours/Week: 5**

Objectives:

1. To acquaint students with the Literatures other than British and American Literature.
2. To introduce the students to learn variety of genres in Literature.

Unit I Poetry - Detailed

E. J. Pratt (1882 - 1964) - The Dying Eagle

Mervyn Morris, *(1937 -)* - Judas

Unit II Poetry - Non-Detailed

A.D. Hope (1907-2000) - Australia

Judith Wright (1915-2000) - Clock and Heart

Unit III Prose

Mahatma Gandhi (1869 - 1948) - My Experiments with Truth (Part 5, Chapter 1 To 15)

Unit IV Drama

Wole Soyinka (1934-) - The Lion and The Jewel

Unit V Novel (Detailed)

Alan Stewart Paten (1903-1988) - Cry, the Beloved Country

Aravind Adiga (1974 -) - Last Man In Tower

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Trace out the social & literary background of Common wealth countries ·	2
CO-2	Discuss the suppressed society reflected in the common wealth literature	2
CO-3	Give a detailed account on common wealth literary writers.	6

Text Books:

1. Walsh William - Commonwealth Literature
2. John Thieve - The Arnold Anthology of Post Colonial Literature in English

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Core-XIV Indian Diasporic Literature

Semester: V **Credits: 4**

Course Code: 18U5EN14 **Hours/Week: 5**

Objectives:

1. To Expose The Diasporic Life And Experience To The Students.
2. To Enable The Students To Know The Richness And Variety Of Diasporic Literature.

Unit - I Diaspora Writings

Definition of The Terms "Diaspora" – Birth of Diasporic Literature

Colonialism and Diaspora – Classification of "Diaspora"- Diasporic Writers

Unit – II Poetry (Detialed)

A.K. Ramanujam (1929-) - Small Scale Reflections on a Great House

R. Parthasarathy - Home Coming

Allen Currow - House and Land

Unit – III Poetry

Dom Moraes (1938-2004) - Absences

Adil Jussawalla (1940-) - Geneva

Meena Alexander (1951-) - Birth Place with Buried Stones

Unit – IV Fiction

Jhumpa Lahiri (1967-) - Namesake

Unit – V Novel

Aravind Adiga (1974 -) - The White Tiger

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Identify and discuss the ways Indian texts speak about and are influenced by history, language, caste, economics, religion, gender, regional differences, sexuality and culture.	6
CO-2	Analyze literary texts and recognize the limitations of such analysis, especially due to the challenges reading non-western texts in a predominantly western academic setting.	3
CO-3	Discuss multiple approaches to Indian texts, including those that illuminate how South Asians debate and understand their own literary and cinematic traditions.	6
CO-4	Apply the challenges and wisdom gained in reading South Asian texts to other intercultural encounters in academics, business, politics, and community.	7

Text Books:

1. John, B. Alphonso – Karkala. Indo-English Literature in the Nineteenth Century. Mysore, 1970.

2. Readings In Common Wealth Literature: Ed, William Walsh Clarendon Press,Oxford,1973.

3. Peeradina, Saleem. Ed. Contemporary Indian Poetry in English: An Assessment and Selection. Chennai: Macmillan Pub. Pvt. Ltd. 2010.

4. Lahiri, Jhumpa. Namesake: Stories. New York: Houghton Mifflin Harcourt, 1999.

5. Ten Twentieth Century Indian Poets: Ed..R.Parthasarathy, Delhi, 1981

6.The White Tiger By Aravind Adiga

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Core-XV British Drama

Semester: VI **Credits: 4**

Course Code: 18U6EN15 **Hours/Week: 5**

Objective:

1. To Make The Students Understand The Spirit Of Modern Plays And Appreciate The Same.

Unit I

Oliver Goldsmith [1728-1774] - She Stoops to Conquer

Unit II

Oscar Wilde [1856-1900] - The Importance of Being Earnest

Unit III

J.M. Synge [1856-1950] - Riders to the Sea

Unit IV

G.B. Shaw (1871-1909) - Arms and the Man

Unit V

Samuel Beckett [1906-1989] - Waiting for Godot

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Students are formed into skilled, knowledgeable, and ethical interpreters of literary texts in English by nurturing their ability to understand drama.	6
CO-2	Students learn historical contexts, psycho-social aspects and discern the various cultural and moral values associated with the texts.	6
CO-3	They become well acquainted with the literary genre of Drama.	1

Text Books:

1. Goldsmith, Oliver, She Stoops to Conquer, Robert Herring, Macmillan Publication.
2. Wilde, Oscar- The Importance of Being Earnest, A. Ramaswamymacmillan Ltd.
3. Synge. J.M, Riders to the Sea, H.H. Anniah Gowda, Macmillan Publication.
4. Shaw Bernard – Arms and the Man- Orient Longman, Macmillan Publication.
5. Beckett, Samuel, *Waiting For Godot*, Peacock Book, New Delhi.

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Core-XVI African Literature

Semester: VI **Credits: 4**

Course Code: 18U6EN16 **Hours/Week: 5**

Objective:

1. To introduce the students of African Literature and the background of the African contribution to the world.

Unit I Poetry Detailed

Chinua Achebe [1913-2013] – Refugee Mother and Child

Noemia De Sousa [1926-2002] – If you want to know me

Poetry Non-Detailed

Bernard Binlin Dadie [1916-] – I thank you God

Gabriel Okara [1921-] – Once upon a Time

David Rubadiri [1930-] – A Negro Labourer in Liverpool

Unit II Prose

Chimamanda Ngozi Adichie - Half of a Yellow Son

Unit III Drama

Wole Soyinka [1934-] – Kongi's Harvest

Unit -IV: Fiction

Chinua Achebe [1913-2013] - Things Fall Apart

Unit – V: Short Story

Chinua Achebe [1913-2013] - Civil Peace

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Student will be able to comment on and analyze literary excerpts	1
CO-2	Student will be able to identify the main characteristics of the different genres of iterature	1
CO-3	Student will be able to write a summary of at least 100 words of any literary works she reads.	2

Text Book:

A Work Book Anthology, Claremont, New African Books, 1996

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Core-XVII Translation Studies

Semester: VI **Credits: 4**

Course Code: 18U6EN17 **Hours/Week: 5**

Objective:

1. To empower students with the acumen of translation skills.

Unit I and II

Translation – Definition

Types of Translation

Decoding and Recoding

Problems of equivalence – History of translation theory

Specific problems of Literary Translations

Translating literary terms

Unit – III

Aristophanes - Frogs

Unit IV

Thirukkural - Friendship and Agriculture from G.U. Pope's Translation

Ovvaiyar - Atthichudi

Unit V

Bharathiyar - Our Mother Land

Prem Chand - Resignation

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Critically apply theories methodologies, and knowledge to address fundamental questions in TS,	5
CO-2	Pursue research of significance in TS or an interdisciplinary or creative project.	8
CO-3	Students will develop the intellectual independence that typifies true scholarship,	4
CO-4	Demonstrate skills in oral and written communication sufficient to publish and present work in TS and to prepare grant proposals.	8,10

Text Books:

1. Savoury Theodore – The Art of Translation
2. Susan Bassnett, MC Guire – Translation Studies (Methuene)

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

CORE-XVIII English for Competitive Examination

Semester: VI **Credits: 4**

Course Code: 18U6EN18 **Hours/Week: 5**

Objective:

1. To enhance the knowledge and techniques to face the various competitive Examinations

Unit – I Grammar

Subject – Verb Agreement

Articles

Sequences of Tenses

Common Errors

Unit – II Word Power

Idioms and Phrases (50)

One Word Substitution (50)

Synonyms (50)

Antonyms (50)

Words Often Confused (50)

Unit – III

Paragraph Writing

Expansion 0f an Idea

Unit – IV

Report Writing

Essay

Letters – Formal and Informal

Unit – V

General Knowledge: UNO, Countries and Capitals, Currencies, and Current Affairs

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs Addressed
CO-1	It will cover all competition syllabus based questions.	10
CO-2	It helps to prepare Competitive exam.	10
CO-3	Students will strong in basic knowledge in English.	9
CO-4	It helps to develop the writing and speaking skills	10

Text Books:

1. V. Saraswathi & Maya K. Mudbhatkal. English For Competitive Exams Emerald Publishers
2. J.K.Gangal : Competitive English For Professional Courses, S.Chand Publications.

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CORE-XIX Business English

Semester: VI **Credits: 3**

Course Code: 18U6EN19 **Hours/Week: 4**

Objective:

1. To help students meet a wider range of writing demands in business contexts to suit a varied clientele.

Unit - I Aspects of Business Writing

Principles of Plain Language

Review of Business Grammar

Unit - II Writing Effective Business Letters

Tone, Courtesy and Style in Business Letters

Parts, Format and Functions of Business Letters

Unit - III Types of Business Letters

Inquiry, Sales and Collection Letters

Claim, Refusal and Adjustment

Unit - IV Report Writing and E-Mail Communication

Formal and Informal Reports

Cyber Language and E-Mail Message

Unit - V Job-Related Communication

Writing Cover Letters

Preparing Resume

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Understand the process of decision making, involving consultation with staff and drawing up a plan of action.	7
CO-2	Understand the diversity of English through history and around the world	1
CO-3	Understand the effect of social and cultural factors on an individual‘s use of English.	6
CO-4	Understand the relationship between a person‘s linguistic heritage and their sense of identity	5

Text Books:

1. Peter, F. (2003). Writing Business Matters. ACE-Loyola: Chennai. (Chapter VII, Section II & III)
2. Baugh, L.S., Frayar, M., Thomas, D. Handbook For Business Writing. NTC Business Books: Illinois. (Chapter II)
3. Block, J.A. (2003). 101 Best Resumes To Sell Yourself. New Delhi: Tata Mcgraw-Hill. (Chapter I, Sections 1,3,7)
4. Oxford Dictionary Of Business English.
5. English Communication, Pooja Khamna

Sixth Semester

Communication Skills - PRACTICAL

External Examination: 75 Marks Internal Examination: 25 Marks

Semester: VI **Credits: 3**

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Course Code: 18U6ENP01 **Hours/Week: 6**

Objectives:

1. To inculcate Practical Communication Skills.

Unit-I (First Three Units Based on Listening Comprehension with Audio)

Pronunciation and Neutralization of Accent

Unit-II

Communication Skills

Telephone Skills

Unit-III

Writing Skills

a. Informational transfer excise a given chart, table or statistics into a report
b. Marking announcements
    i. Announcements in radio and T.V. About programmers & missing persons
    ii. Announcement in railway stations about the arrival/departure/cancellation of trains.
c. Filling of forms
    i. Mobile connection form
    ii. Bank A/C Opening Form
    iii. Passport Application Form
    iv. Railway Reservation/Cancellation/Forms
d. Preparing Advertisements And Brochures

Unit-IV

A. Group Discussion Skills
    a. Dress and Appearance

b. Motivation
c. Importance of being calm and friendly
d. Importance of listening
e. Leadership qualities
f. Knowledge of the subject
g. Delivery
    i. Body Language
    ii. Voice Modulation
    iii. Language: Simple, Specific, Intelligible, Concrete & Sensuous
    iv. Brevity
    v. Humour

Note: Students are to be trained to group-discuss current affairs, national issues, international developments, social issues, systems of government, human rights etc.

B. Public Speaking Skills:

a. Preparation
b. Knowledge of the subject
c. Dress and appearance
d. Delivery: body language, brevity, humour, accuracy and eloquence
e. Use of anecdotes
f. Sensing the audience
g. Overcoming fear
h. Time-management
i. Encountering a hostile atmosphere

C. Reading Skills: (For Internal Evaluation)

A. Pronunciation, Stress and Intonation

B. Fluency

Unit-V

A. Interview Skills.

a. Making the interview-file
b. Preparation for the interview
c. Dress and appearance
d. Entry and exit
e. Eye- contact
f. Gestures and posture
g. Presence of mind
h. Communication skills
i. Knowledge
j. Brevity and accuracy
k. Leadership qualities
l. Negative aspects

B. Magazine Making: See "Guidelines" For Conducting Practical Examination

Note 1: students are to be informed about the skills to be tested and the marks allotted to each of them in group discussion, public speaking, and reading and interview-skills tests. For details see appendix (test – details_

Note 2: for the test in interview skills students are required to bring their CV with them.

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed

CO-1	Understand the process of communication and its effect on giving and receiving information	8
CO-2	Learn about historical and theoretical developments in the field of communication	5
CO-3	Apply effective communication skills in a variety of public and interpersonal settings	3
CO-4	Develop analytical, research, and organizational skills	5

Reference Books

For Units I, II: Practice Book

A Course in Listening And Speaking-I (With CD) By V. Sasikumar, P. Kiranmai Dutt And Geetha Rajeevan. Published By Foundation Books, 21/1, (New No.49), I Floor, Model School Road, Thousand Light, Chennai- 600 006. Test- Material Will Be Only From The CD Supplied With This Practice Book.

For Unit IV A: Group Discussion Skills

'Group Discussion' By Uma Kantsingh, Arihant Publications Pvt. Ltd..,

For Unit IV B: Public Speaking Skills

'Better Speeches Made Easy' By Walter Thompson, Pub. By W.R Goyal Publishers And Distributors, 86, UB Jawahar Nagar, Delhi-110 007. E-Mail:Goyal@Vsnl.Com

For Unit V: A: Interview Skills:

i) 'The Art and Techniques of Interviews" by B.S. Sijwal and Indu Sijwal Pub. Bym Arihant Publications, Kalindi Transport Nagar, Meerut-2 (U.P)-250 002. Phone: (0121) 2401476, 2512970. Fax: (0121) 2401648.

ii) 'Interview Manual-Interview Techniques and Model Interviews By Abdul Hashem. Pub. by Ramesh Publishing House, 12-H New Daryaganj Road, (Opp. To Traffic Kotwali), New Delhi- 110 002. Tel: 23275124. 5224. T.Fax:011-23245124. E-Mail: Rphbooks@Vsnl.Net.In.

iii) Campus to Corporate, K.K Ramachendran And K.K.Karthick

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Skill Based Elective Course

Phonetics & Transcription

Semester: III **Credits: 4**

Course Code: 18U3ENS01 **Hours/Week: 6**

Objectives :

1. To enable students to acquire a theoretical background of the sound system in English
2. To enable them to acquire pronunciation skill by practice

Unit - I

Speech Mechanism and Organs of Speech

Unit - II

Classification and Description of Consonant sounds in English

Unit - III

Classification and Description of Vowel sounds in English

Unit - IV

Word-Accent: Certain guidelines

Unit - V

Transcription of Words (not exceeding three syllables)

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Transcribe and explain the phonetic processes common to Languages of the world .	5
CO-2	Perform field work in phonetics—learning to record and acoustically analyze phonetics data.	8
CO-3	Recognize the phonetic systems of several languages and how and why the languages are organized the way they are.	8

Text Books:

1. A Text book of English Phonetics for Indian Students – T. Balasubramanian, Macmillan Publications
2. Lalitha Ramamurthy – A History of English Language and Elements of Phonetics

Skill Based Elective Course - II

Media Communication

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Semester: IV **Credits: 2**

Course Code: 18U4ENSO2 **Hours/Week: 2**

Objectives:

1. To develop creative skills through encouraging the production of Media messages
2. To encourage students to suppress their feelings and thoughts through media messages they produce.
3. To develop skills to deconstruct media messages by making them to understand the constructed nature of media.
4. To enable students to identity various job possibilities in Media.

Unit - I Mass Media

Definition of Mass Media

Functions of Mass Media

Theories of press /media – the role of the press

News and news values - press codes and ethics

Effective of mass media on Education

Unit - II Radio

Development of Radio as Mass Medium – Indian Broadcasting: The Early years – The War Years – AIR after independence-AIR in the 1990's – FM broad casting – Digital Audio Broadcasting (DAB) – AIR service National, Regional, Ethics of Broad casting

Unit - III Television

History of Television – Indian Television – Television and National Development – Television and Higher Education, TV for social and Political Education. Ethics of Telecasting – Guidelines for Advertising on AIR and TV

Unit - IV Advertisement And Public Relations

Origin and Development of Advertising - Modern Advertising, Types of Advertising, Principles of Advertising, Media Relations Ethics in Advertising and Public Relations

Unit - V Cinema

The Studio System - Documentary and Short Films, Film as contemporary Art Form – Impact of Cinema on society - Ethics of Cinema Film Censorship

Project: Taking a Short Film on Current Issues.

Taking a Short film-On Current issues-Advertisements

Social network

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Analyze oral and written discourse of various genres with regard to social, cultural, political, and historical contexts.	1
CO-2	Apply theoretical frameworks to analyze media and other forms of public discourse.	4

Prescribed Text :

Keval J. Kumar, Mass Communication in India

ALLIED - I Social History of England- I

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Semester : I **Credits: 4**

Course Code : 18U1ENA01 **Hours/Week: 6**

Objectives :

1. To inculcate in the students the knowledge of the social history of the country of the native speakers
2. To make the students aware of the links between socio-political events and literary works

Unit - I

Renaissance

Reformation

Unit - II

Elizabethan Theatre

The East Indian Company

Unit - III

Colonial Expansion

The Civil War and its Social Significance

Unit - IV

Puritanism

Restoration of England

Unit - V

Age of Queen Anne

Coffee house Life in London

Course Outcomes

CO. NO	**Upon completion of this course , the students will be able to**	**PSOs Addressed**
CO-1	The ability to analyze, interpret, and understand the complex interrelationships between authors, texts, and specific social, political, and historical contexts.	6
CO-2	A demonstrable ability to use the terms, categories, and concepts of critical or -close‖ reading.	4
CO-3	A working knowledge of literary canons in English, as well as strategies for critiquing them.	2

Prescribed Text :

1) Xavier A.G. Introduction to the Social History of England

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Semester : II **Credits: 4**

Course Code : 18U2ENA01 **Hours/Week: 6**

Objectives :

1.To inculcate in the students the knowledge of the social history of the country of the native speakers

2.To make the students aware of the links between socio-political events and literary works

Unit - I

The Agrarian Revolution

The Industrial Revolution

Unit - II

Humanitarian Movement

Effects of the French Revolution

Unit - III

The Reform Bills

The Victorian Age

Unit - IV

The Development of Education in 19th Century

The Development of Transport and Communication

Unit - V

The World Wars and Social Security

Trade Unionism in England

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Students would know about Indian writers and their works.	5
CO-2	Students can use their skill to write poems.	7
CO-3	To learn the literary, societal, cultural, biographical and historical background of the greatest English writings penned by Indian Authors.	5

Prescribed Text:

1) Xavier A. G. Introduction to the Social History of England

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Semester : III **Credits: 4**

Course Code : 18U3ENA03 **Hours/Week: 4**

Objectives :

1.To enhance the student's knowledge of the scholar's life and works

2.To empower the students with chronological study of English Literature

Unit - I:

The Age of Chaucer (1300 - 1400)

Chaucer's life- Chaucer's works – The Canterbury Tales – Other poets of Chaucer's age – Prose of Chaucer's age – From Chaucer to Tottel's Miscellany

Unit - II:

The Development of Drama (1400 - 1561)

The beginnings of the English drama – Miracle plays – Morality plays and Interludes - The beginnings of Regular comedy and tragedy.

Unit - III:

Age of Shakespeare (1558 - 1625)

Spenser and his poetry – Other poets from 1579-1625 – Shakespeare's predecessors – Shakespeare's life and works – Other dramatists of Shakespeare's age – Prose of Shakespeare's age.

Unit - IV:

Age of Dryden (1600 - 1700)

The forerunners of Dryden – Dryden's life – Dryden's poetry – The rise of modern prose – Other prose writers of the period – The drama of the age of Dryden

Unit - V:

Age of Milton (1625 - 1660)

Milton's life – Milton's earlier poetry – Milton's prose writing – Milton's later poetry – Other poets and prose writers

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Course Outcomes

CO. NO	**Upon completion of this course , the students will be able to**	**PSOs addressed**
CO-1	Demonstrate knowledge and comprehension of major texts and traditions of language and literature written in English as well as their social, cultural, theoretical, and historical contexts;	1
CO-2	Analyze and interpret texts written in English, evaluating and assessing the results in written or oral arguments using appropriate support;	2
CO-3	Design and create texts for a variety of purposes and audiences, evaluating and assessing the effectiveness and meaning of such texts.	6,1,9

Prescribed Books:

An Outline History of English Literature by William Henry Hudson, B.I Publications Pvt.Ltd.2011

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Allied - IV History of English Literature - II

Semester: IV **Credits: 4 Course**

Code: 18U4ENAO4 **Hours/Week: 5**

Objectives:

1. To enhance the student's knowledge of the scholar's life and works
2. To empower the students' comprehension of the chronological effects in the world of English Literature

Unit –I:

Age of Pope (1700 - 1745)

Characteristics of classical school of poetry – Pope's life and works – Other poets of the period – Prose and the drama – Other prose writers of the period.

Unit –II

Age of Johnson (1745 - 1798)

Other general prose writers of the period – prose fiction in England before Richardson – Historical signification of the novel – Other novelists of the period – The revival of romance – The development of naturalism

Unit –III:

Age of Wordsworth (1798-1832)

The older poets – Wordsworth's life – Characteristics of Wordsworth's poetry – Other poets contemporary with Wordsworth – The Younger poets – Other poets of later revolutionary age – Other prose writers of the period – Other novelists of the time

Unit –IV:

Age of Tennyson (1832-1887)

Tennyson – Browning - Other poets of the period – Prose writers of the time – Novelists of the period

Unit – V:

Age of Hardy (1887-1928)

Epilogue to the Victorian age – Thomas Hardy – Poets of the transition – Dramatists of the transition – Other playwrights – Novelist of the transition – Twentieth century novelists – Miscellaneous prose

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	Demonstrate knowledge and comprehension of major Texts and traditions of language and literature written in English as well as their social, cultural, theoretical, and historical contexts;	1
CO-2	Analyze and interpret texts written in English, evaluating and assessing the results in written or oral arguments using appropriate support;	6,
CO-3	Design and create texts for a variety of purposes and audiences, evaluating and assessing the effectiveness and meaning of such texts.	7

Prescribed Text :

An Outline History of English Literature by William Henry Hudson, B.I Publications Pvt.Ltd.2011

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

List of Non-Major Elective Course (NMEC)

Sem	Part	Course code	Course title	Hrs./ Week	Cr.	Marks		Total
						Int	Ext	
III IV	IV	18U3ENN01	Interpersonal Skills	2	2	25	75	100

Interpersonal Skills

Objectives:

1. To develop Inter-Personal skills
2. To prepare the students to face interviews.
3. To enable the students participate in group dynamics.

Unit-I Forming Values

What is a value? - A core of values – values relating to education – values relating to self and others – values relating to civic responsibilities-Values and attitudes – importance of values – formation of values – types of values – power of values – personal values –cultural values-social values

Unit-II Self-Discovery / Self-Esteem

Importance of knowing yourself – process of knowing yourself- SWOT analysis – benefits of SWOT analysis

Self – personality- sensitivity- self-esteem – positive self-esteem- causes of low self-esteem- steps to build a positive self-esteem

Unit-III LSRW Skills

Art of Listening - Benefits of active listening - Kinds of listening

Art of Speaking – importance of public speaking- benefits of public speaking- public speaking tips-body language

Art of Reading – different types of reading- tips for effective reading. Art of Writing – creative writing - types of resumes – CV writing tips

Unit-IV Interview Skills & Group Discussion

Types of interviews – interview panel - reasons for rejecting a candidate – dress code for interview– typical questions asked – quick tips – how to present well in an interview-

Meaning of GD – Why Group Discussion- Types of GD – Skills required in a GD – Behaviour in a GD – Initiating a GD – Movement and gestures to be avoided in a GD.

Unit- V Etiquette & Manners

Etiquette – modern etiquette – civic behavior

Manners – poor manners noticed in youth- why should you practice good manners? - Practicing good manners- manners at the wheel: – dealing with the challenged – professional manners- social skills (manners) – getting along with people: manners to get respect from others.

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Course Outcomes

CO. NO	**Upon completion of this course , the students will be able to**	**PSOs addressed**
CO-1	Recognise the importance of interpersonal skills	8
CO-2	Describe how good communication with others can influence our working relationships	4
CO-3	Outline the roles we play in our work groups and teams.	9

Text Books:

1.Dr. Alex. K. Soft Skills. Know Yourself and Know the World, New Delhi, S. Chand & Co.

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Foundation English –I

Semester: I **Credits: 3**

Course Code: 18U1FENO1 **Hours: 6**

Objectives

1. Develop their intellectual, personal and professional abilities.
2. Acquire basic language skills (listening, speaking, reading and writing) in order to communication with speakers of English language.

Unit-I (Poetry)

Rabindranath Tagore (1861-1941)	-	The Paper Boat
Robert Frost (1874-1963)	-	The Road not Taken
Annie Louisa Walker (1836-1907)	-	Women's Rights

Unit-II (Grammar)

Parts of
Speech
Articles

Transformation of Sentences – Affirmative to Negatives; and Interrogatives

Unit-III (Prose)

R.K. Narayan (1906-2001)	-	Better Late
Somerset Maugham (1870-1965)	-	The Verger
Stephen Leacock (1869-1944)	-	How to be a Doctor

Unit-IV (Language Skills)

Letter Writing (Formal)

Letter Writing (Informal)

Expansion of Ideas and Proverb

Unit – V(Communicative English)

Greeting, Complimenting, Introducing oneself and others

Dialogue Building

Showing Directions

Selvamm Arts and Science College (Autonomous), Namakkal

Department of English

B.A English

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	To learn and apply reading strategies and critically evaluating sources of information.	3
CO-2	Identify important information from academic readings, lectures and seminars and taking effective and meaningful notes.	4
CO-3	Apply the knowledge and skills gained from the course when reading academic texts associated with their university studies.	6

Text Book

1. English For Empowerment for Young Readers (Board of Editors) - Manimekala Publishing House, Madur

Selvamm Arts and Science College (Autonomous), Namakka

Department of English

B.A English

Foundation English-II

Semester: II **Credits: 3**

Course Code: 18U2FEN02 **Hours: 6**

Objectives

1. Develop their intellectual, personal and professional abilities.
2. Acquire basic language skills (listening, speaking, reading and writing) in order to communication with speakers of English language.

Unit-I (Poetry)

Nissim Ezekiel (1924-2004)	-	Night of the Scorpion
Chinua Achebe (1930-2013)	-	Refugee Mother and Child
William Blake (1757-1827)	-	The Tyger

Unit-II (Grammar)

Direct Speech and Indirect Speech Active Voice and Passive Voice Degrees of Comparison

Unit-III (Prose)

John Gerard Bruton (1947-)	-	The Gift of Language
A. Rajagopalachari (1878-1972)	-	Tree Speaks
Alfred George Gardiner (1865-1946)	-	On Habits

Unit-IV (Language Skills)

Agenda and Minutes Writing

Drafting Advertisements

Common Errors in English

Unit- V (Short Stories)

Oscar Wilde (1854-1900)	-	The Modern Millionaire
R. Krishnaswamy Narayan (1906-2001)	-	Sweet for Angels
Ernest Hemingway (1899-1961)	-	A Day‘s Wait

Selvamm Arts and Science College (Autonomous), Namakka

Department of English

B.A English

Course Outcomes

CO. NO	**Upon completion of this course , the students will be able to**	**PSOs addressed**
CO-1	To learn and apply reading strategies and critically evaluating sources of information.	3
CO-2	Identify important information from academic readings, lectures and seminars and taking effective and meaningful notes.	4
CO-3	Apply the knowledge and skills gained from the course when reading academic texts associated with their university studies.	6
CO-4	Demonstrate an understanding of the structure, conventions and characteristics of an academic essay and the writing process.	7

Text Book

1`. English For Empowerment for Young Readers (Board of Editors) - Manimekala Publishing House, Madurai.

Foundation English-III

Semester: III **Credits: 3**

Course Code: 18U3FENO3 **Hours: 6**

Objectives

1. Develop their intellectual, personal and professional abilities.
2. Acquire basic language skills (listening, speaking, reading and writing) in order to communication with speakers of **English** language.

Unit- I **(Poetry)**

Robert Frost(1874-1963)-Stopping by Woods on a snowy Evening

William Butler Yeats (1865-1939) -A Prayer for my Daughter

Nissim Ezekiel (1924-2004) - Enterprise

Unit-II **(Grammar)**

Phrases and Clauses

Types of Sentences

Framing Questions and Answers

Unit-III **(Prose)**

Mahatma Gandhi (1869-1948) -Women not the Weaker Sex

Dr. A.P.J. Abdul Kalam (1931-2015) -Dimensions of Creativity

Helen Keller (1880-1968) - Three Days to See

Unit-IV (Bio- Graphies)

Martin Luther King(1929-1968)

Jawaharlal Nehru (1889-1964)

Mother Teresa (1910-1997)

Unit-V (Short Stories)

R. Krishnaswamy Narayan (1906-2001) - An Astrologer's Day

Leo Tolstoy (1828-1910) -Little Girls Wiser than men

William Elliot Griffs (1843- 1928)-The Boy who wanted more cheese

Course Outcomes

CO. NO	Upon completion of this course , the students will be able to	PSOs addressed
CO-1	To learn and apply reading strategies and critically evaluating sources of information.	3
CO-2	Identify important information from academic readings, lectures and seminars and taking effective and meaningful notes.	4
CO-3	Apply the knowledge and skills gained from the course when reading academic texts associated with their university studies.	6

Text Book

1.Sizzlers (Board of Editors) – Manimekala Publishing House, Madurai.

Selvamm Arts and Science College (Autonomous), Namakkal
Department of English

B.A English

Semester: IV **Credits: 3**

Course Code: 18U4FEN04 **Hours: 6**

Foundation English –IV

Objectives

1. Develop their intellectual, personal and professional abilities.
2. Acquire basic language skills (listening, speaking, reading and writing) in order to communication with speakers of **English** language.

Unit-I **(Poetry)**

Robert Browning (1812-1889)-Incident of the French Camp

David Herbert Lawrence (1885-1930) - Snake

Thomas Sterne Eliot (1888-1965) - The Journey of the Magi

Unit-II **(Grammar)**

Tenses – Simple Past, Past Continuous, Past Perfect, Past Perfect Continuous

One Word Substitution

Words often confused

Unit-III **(Prose)**

Herbert George Wells (1860-1946)-The Truth about Pyecraft

Alfred George Gardiner (1865-1946)-On Saying Please

Dr. A.P. J. Abdul Kalam (1931-2015)-My Visions for India

Unit-IV (Language Skills)

Writing CV/Resume

Drafting Email

Jumbled sentences

Unit-V (Select Scenes From Shakespeare's Plays)

Trial Scene' from -The Merchant of Venice'

Seven Stages of Man' from -As You Like It'

Polonius Advise to his son' from -Hamlet'

Course Outcomes

CO. NO	**Upon completion of this course , the students will be able to**	**PSOs addressed**
CO-1	To learn and apply reading strategies and critically evaluating sources of information.	3
CO-2	Identify important information from academic readings, lectures and seminars and taking effective and meaningful notes.	4
CO-3	Apply the knowledge and skills gained from the course when reading academic texts associated with their university studies.	6

CO-4	Demonstrate an understanding of the structure, conventions and characteristics of an academic essay and the writing process.	CO-4

Text Book

1. Visions of Life (Board of Editors) Harrows Publications, Chennai.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> ehkf;fy; - 3

(jd;dhl;rp)

(Njrpa ju kW kjpg;gPl;by; ‘A’rhd;wpjo; ngw;wJ.)

(gy;fiyf;fof khdpaf; FOthy; 2(f) kw;Wk; 12(B) mq;fPfhuk; ngw;wJ)

ehkf;fy; - 637 003

jkpo;j;Jiw

,sk; ,yf;fpatpay; (gp.ypl;.) - ghlj;jpl;lk;

njupTrhu; ghlKiw (CBCS)

KONeug; ghlj;jpl;lk; 2018 - 19 Kjy;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

gp.ypl; jkpo;

Vision

khztu;fspilNa Njrgw;W jkpo; nkhopapd; njhd;ik kw;Wk; rpwg;ig jkpo;nkhop thapyhf fw;gpj;jy;.

Mission

khztu;fSf;F jha;nkhopg; gw;iw tsu;j;jy;.,iza top jkpo; Nritiag; gpd;gw;w Cf;Ftpj;jy;. jkpo; nkhopapd; tsu;r;rpiaAk; rpwg;igAk; mjpfg;gLj;Jjy;.

PO : 1 : jpwk;gl NgRjy;:

Mq;fpyk; kw;Wk; jkpo; ,uz;bYk; Gyik ngw;wth;. njhopw; rhh;e;j kw;Wk; njhopy; rhuhj ciuahly;fspd; NtWghLfis mwpe;J nfhs;Sjy; njhopy;El;gj;Jld; ftdpj;jy;> NgRjy;> gbj;jy;> vOJjy; Mfpa jpwd;fis Nkk;gLj;Jjy;.

PO : 2 : Rw;Wr;#oy; ghJfhg;G:

Rw;Wr;#oiy rhh;e;J ,Uj;jy;> kWgad;ghL nra;jy;> kWRow;rp nra;jy; ,aw;ifNahL xd;wpUj;jy;. mjDld; ,aw;ifAk; kio ePiuAk; ghJfhj;J itf;f Njitahd eltbf;iffis Nkw;nfhs;Sjy;.

PO : 3 : MNuhf;fpa gapw;rp kw;Wk; newpKiwfs;:

md;whl tho;f;ifapy; jdpkdpjdpd; kjpg;Gfis cah;j;jpf; nfhs;s Nahfh kw;Wk; gpw clw;gapw;rp nra;jy;. ,jdhy; kdpjdpd; xOf;fk; Rakhpahij kw;Wk; tYthd xUikg;ghl;il cUthf;fKbAk;.

PO : 4 : r%f czh;T:

fpuhkg;Gwq;fis Nkk;gLj;Jtjw;fhf fpuhkg;Gw kf;fspd; #o;epiyfisg; Ghpe;Jnfhz;lnjhL r%f eydpy; mf;fiu nfhz;L kf;fSf;F Vw;gLk; gpur;rpidfisj; jPh;j;J ekJ Njrj;jpd; J}a;ikahd Fbkfdhf khWjy;.

PO : 5 : nghUshjhu epGzh;:

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jq;fspd; jpwikfis ntspg;gLj;Jjy; kw;Wk; Nkk;gl;l njhopy;El;gq;fSld; xUq;fpize;J ,e;jpa> Njrpa kw;Wk; cyfshtpa Nghl;bahsuhf khw;wg;gLfpd;wdh;.

PO : 6 : Kd;khjphp:

r%fj;jpd; nraypy; cs;s tpisahl;Lfspd; %yk; epWtd mwpTrhh; kw;Wk; jdpg;gl;l jpwd;fis tsh;j;Jf; nfhs;s xUtDf;F r%fk; Kd;khjphpahf ,Uf;fpwJ.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

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Sem.	Part	Course Code	Course Title	Ins Hrs/ Week	Credit	Exam Hrs	Marks		Total
							CIA	EA	
I	I	18U1FTL01	gad;ghl;Lj;jkpo;	5	4	3	25	75	100
	III	18U1TL01	,f;fhy ,yf;fpak;	6	4	3	25	75	100
	III	18U1TL02	,yf;fzk; - 1 ed;D}y; vOj;J	6	4	3	25	75	100
	III	18U1TL03	jkpo; ,yf;fpa tuyhW	6	4	3	25	75	100
	Allied -I	18U1TLA01	jkpof tuyhWk; gz;ghLk;	5	4	3	25	75	100
	IV	18U1VE01	Nahfh kw;Wk; gapw;rp	2	1	3	25	75	100
			nkhj;jk;	**30**	**21**				**600**

Sem.	Part	Course Code	Course Title	Ins Hrs/ Week	Credit	Exam Hrs	Marks		Total
							CIA	EA	
II	II	18U2FEL02	FUNCTIONAL ENGLISH	5	4	3	25	75	100
	III	18U2TL04	gf;jp ,yf;fpak;	5	4	3	25	75	100
	III	18U2TL05	,yf;fzk; - 2 ed;D}y; nrhy;	6	4	3	25	75	100
	III	18U2TL06	jkpo; ,yf;fpa tuyhW	5	4	3	25	75	100
	Allied – II	18U2TLA02	jkpof tuyhWk; gz;ghLk;	5	4	3	25	75	100

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

	IV	18U2VE02	tho;f;if kjpg;gPLfs;	2	1	3	25	75	100
	IV	18U2ES01	Rw;Wr;#oypay;	2	1	3	25	75	100
nkhj;jk;				**30**	**22**				**700**

Sem.	Part	Course Code	Course Title	Ins Hrs/ Week	Credit	Exam Hrs	Marks		Total
							CIA	EA	
III	III	18U3TL07	mw ,yf;fpaq;fs;	5	4	3	25	75	100
	III	18U3TL08	,yf;fzk; (ek;gp>Gwg;nghUs;)	6	4	3	25	75	100
	III	18U3TL09	,yf;fpaj; jpwdha;tpay;	5	4	3	25	75	100
	III	18U3TL10	rpw;wpyf;fpak;	5	4	3	25	75	100
	Allied-III	18U3TLA03	jpuhtplnkhopfspd; xg;gpyf;fzk;	5	4	3	25	75	100
	IV	18U3TLS01	,aw;if kUj;Jtk;	2	2	3	25	75	100
	IV	18U3CSN02	Non Major Elective Course –I	2	2	3	25	75	100
nkhj;jk;				**30**	**24**				**700**

Sem.	Part	Course Code	Course Title	Ins Hrs/ Week	Credit	Exam Hrs	Marks		Total
							CIA	EA	
IV	III	18U4TL11	fhg;gpaq;fs;	5	4	3	25	75	100
	III	18U4TL12	,yf;fzk; (ahg;G>	6	4	3	25	75	100

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

			mzp;)						
	III	18U4TL13	jkpo;nkhop tuyhW	5	4	3	25	75	100
	III	18U4TL14	kf;fs; jfty; njhlu;gpay;	5	4	3	25	75	100
	Allied-IV	18U4TLA04	Ngr;Rf;fiy	5	3	3	25	75	100
	IV	18U4TLS02	Ml;rpg;gzpj; jkpo;	2	2	3	25	75	100
	IV	18U4ELN01	Non Major Electi Course-II CELLULA PHONE SERVICING	2	2	3	25	75	100
nkhj;jk;				**30**	**23**				**700**

Sem.	Part	Course Code	Course Title	Ins Hrs/ Week	Credit	Exam Hrs	Marks		Total
							CIA	EA	
V	III	15U5TL15	rq;f ,yf;fpak; (mfk;)	5	4	3	25	75	100
	III	15U5TL16	njhy;fhg;gpak; - vOj;J	5	4	3	25	75	100
	III	15U5TL17	njhy;fhg;gpak; - nrhy;	5	4	3	25	75	100
	III	15U5TL18	xg;gpyf;fpak;	5	4	3	25	75	100
	III	15U5TL19	ehl;Lg;Gwtpay;	5	4	3	25	75	100
	III	18U5TL20	Nfhapw;fiyfs;	5	4	3	25	75	100
nkhj;jk;				**30**	**24**				**600**

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

Sem.	Part	Course Code	Course Title	Ins Hrs/ Week	Credit	Exam Hrs	Marks		Total
							CIA	EA	
VI	III	15U6TL21	rq;f ,yf;fpak; (Gwk;)	5	4	3	25	75	100
	III	15U6TL22	njhy;fhg;gpak; - nghUs; - I	5	4	3	25	75	100
	III	15U6TL23	njhy;fhg;gpak; - nghUs; - II	5	4	3	25	75	100
	III	15U6TL24	,f;fhy nkhopapay;	5	4	3	25	75	100
	III	15U6TL25	gilg;gpyf;fpak;	4	4	3	25	75	100
	III	15U6TL26	,izak;	4	4	3	25	75	100
	IV	15U6CCEX01	tpupthf;fr; nray;ghLfs;		1				
	IV	15U6STE01	Skills Through English	2	1		25	75	100
			nkhj;jk;	**30**	**26**				**700**

Program Specific Outcomes (PSos)

PSO1	goq;fhyj; jkpo; ,yf;fpa ,yf;fzq;fspd; tuyhw;wpid mwpe;Jnfhs;s gad;gL fpwJ
PSO2	jkpo; ,yf;fzk; Fwpj;J khzth;fs; mwpar; nra;jy;.
PSO3	goe;jkpohpd; tho;tpay; xOf;fKiwfis gz;ila ,yf;fpak; top mwpar; nra;jy;
PSO4	gf;jp ,yf;fpaq;fs; njhlh;ghd jkpoh; fiyfs; rpj;jhe;jf; fUj;Jf;fis mwpar; nra;jy;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

PSO5	jkpopyf;fpaq;fis xg;gpl;L Muha;r;rp Kiwapy; mwpe;J nfhs;Sjy;
PSO6	gz;ila jkpoh;fspd; mwtho;tpaiyAk; rpw;wpyf;fpa tiffis mjd; rpwg;GfisAk; mwpar; nra;jy;.
PSO7	,d;iwa kdpj tho;tpaYf;F Vw;wthW kdpj chpikiaAk; tho;tpay; njhlh;ghd fUj;Jf;fis khztHfs; czh;j;jy;
PSO8	jkpo; nkhopapd; rpwg;GfisAk; jkpo;nkhopia gpwnkhopfNshL xg;gpl;L ghh;j;jy
PSO9	fhyj;ij ntd;W tho;e;j gz;ilajkpoh;fspd; ,aw;if kUj;JtKiwfisAk; ,aw;ifiag;ghJfhf;fFk; Rw;Wr;#oy; Fwpj;j fUj;Jf;fis mwpar; nra;jy;.
PS10	tsh;e;J tUk; ,d;iwa Clf tsh;r;rpia khzth;fs; mwpar; nra;jy;.
PS11	fhye;NjhWk; tsh;r;rp mile;J ftpij rpWfijapd; tsh;r;rp Nghf;fpid khzth;fs; mwpar; nra;jy;.
PS12	,aw;ifNahL ,ize;j gz;ghl;Lf;fy;tpNa jw;fhy tsh;r;rpNa Muha;jy;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jhs; : 1 gad;ghl;Lj;jkpo;

Programme : B.Lit., Course Code : 18U1FTL01

Semester : I No.of hrs : 5

Course : Part - 1 No.of Credits : 4

myF – 1

Mrphpah; fbjk; - fbjg; nghUs; - fbjk; vOJgth;fs; - rpwg;Gg; gFjp – kWg;Gf; fbjk; - fbjq;fSf;Fg; ghpR – ehspjo;fspy; fbjq;fs; - vjph;g;Gk; kWg;Gk; - ed;wp fbjq;fs;.

myF – 2

mYtyff; fbjk; - mYtyfj; jkpo;eil – vspikahd jkpo;eil – fbj mikg;G – fy;Y}hp fbjq;fs; - chpikr; rhd;W fbjq;fs; - cly; CdKw;Nwhh; fbjq;fs; - fbjq;fSf;F tiuaiw.

myF - 3

tpsk;guj; jkpo;> gjpg;ghrphpah; tpsk;gu epWtdq;fs; - nkhopAk; tpsk;guKk; - tpsk;gu tiffs; - epiwfSk; FiwfSk; - tpsk;guk; xU fiy.

myF - 4

nka;g;Gj; jpUj;jYk; - E}yhf;fg; gzpAk; - mr;Rg;gpio – nka;g;Gj; jpUj;jg; gzp - $hpa ghh;it – nghWik Njit – gpiofisj; jpUj;jy; - nka;g;Gj; jpUj;jf; Fwpfs;.

myF – 5

thndhyp – jdpj;jpwk; - NtWghL – nkhopg;gad;ghL - njhiyf;fhl;rp – tha;g;Gfs; - rpf;fy;fs; - epfo;r;rpfspy; gq;Fngwy;> Mtzq;fs; tiujy; - Mtzq;fisg; gjpT nra;jy;.

CO	Upon completion of this course, students will be able to	PSOs

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

No.		**addressed**
CO-1	khzth;fs; fbjk; vOJk; Kiwiaf; fw;Wf;nfhz;ldh;	8
CO-2	mYtyff; fbjq;fs; jkpo;eilapy; vOJk; Kiwiaj; njhpe;Jnfhz;ldh	8
CO-3	tpsk;guk; jhd; kdpjh;fis top elj;Jk; Cf;fpahfr; nray;gLtijg; Ghpe;J nfhz;ldh.;	10
CO-4	vOj;Jg; gpiofs; ,y;yhky; vOj fw;Wj;jWjy;.	2
CO-5	thndyp> njhiyf;fhl;rpapy; gq;Fngw Cf;fkspj;jy;.	10

ghlE}y;;:

1. fh. gl;lhgpuhkd; - nkhopg;gad;ghL epA+nrQ;Rhp Gf;`T]; (gp) ypl;> 41>gp.rpl;Nfh ,z;l;];bhpay; v];Nll;> mk;gj;J}h;.

jhs; : 1 ,f;fhy ,yf;fpak;

Programme : B.Lit., Course Code : 18U1TL01
Semester : I No.of hrs : 6
Course : No.of Credits : 4

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

myF-1 kuGf;ftpij

ghujpahH - ghQ;rhyp rgjk; (KOtJk;).

ghujpjhrd; - Gul;rpf;ftp;.

myF – 2 GJf;ftpij

rpw;gp - xU fpuhkj;J ejp

mwpTkjp – el;Gf;fhyk;;

myF – 3 rpWfij

G+kzp – fpopry; (fhyr;RtL gjpg;gfk);
cwT – ghz;bauhrd; (ghit gg;spNfrd;)
kjpkhh; fijfs; - Nfhzq;fp
Xu; cy;yhrg; gazk; - tz;zjhrd;
Neu;ik – nt.,iwad;G

;.

myF - 4 ehty; R.rKj;jpuk; - Ntupy; gOj;j gyh
jhuh. fNzrd; - cg;G tay;

myF – 5 ehlfk;

K. ,uhkrhkp; - nusj;jpuk; goF

jz;zPh; jz;zPh; - Nfhky; Rthkpehjd;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	kuGf;ftpij tsh;r;rp> tuyhW mwpe;Jf;nfhs;Sjy;.	7

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO-2	GJf;ftpijapd; gad;ghl;bidAk;> gilj;jy; jpwd; tsh;j;jy; gw;wpAk; njhpe;Jf;nfhs;Sjy;;;.	7
CO-3	tl;lhu rpWfijfs; gw;wp mwpe;Jf; nfhs;Sjy;.	8
CO-4	tl;lhu ehty; gw;wp mwpe;Jf; nfhs;Sjy;.	8
CO-5	ehlfk; %yk; fjhghj;jpuq;fspd; Kf;fpaj;Jtj;ij mwpjy;	8

ghlE}y;fs;:

1. m.rpjk;guehj nrl;bahu; (njh.M) rpWfijf; fsQ;rpak; njhFjp- 1
   rp.I.b.tshfk;> jukzp. nrd;id
2. mfpyd; (njh.M) jkpo;r;rpWfijfs; njhFjp – 2 Fzh gpy;bq;];> 443 mz;zh rhiy> nrd;id
3. R.rKj;jpud;> Ntupy; gOj;j gyh

jhs; : 2 ,yf;fzk; ed;D}y; - vOj;jjpfhuk;

Programme : B.Lit., Course Code : 18U1TL02
Semester : I No.of hrs : 6

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

Course : Core **No.of Credits : 4**

Nehf;fk; : nghJg;ghapuk;. rpwg;Gg;ghapuj;jpd; jd;ikfis tpsf;fpf; nfhs;Sjy

Nehf;fk; : vOj;jpd; jd;ikfs;> tiffis njhpe;J; nfhs;Sjy;.
Nehf;fk; : gjtpay; rhh;e;j ,yf;fpaf; Nfhl;ghLfis mwpe;Jfnfhs;Sjy;.
Nehf;fk; : Gzh;r;rpapd; tiffisAk;> caphPw;Wr;nrhw;fs; NrUk;NghJ Vw;gLk; Gzh;r;rpia mwpe;J nfhs;Sjy;.
Nehf;fk; : nka;aPw;W> cUG GzhpaiyAk; mwpe;J nfhs;Sjy;.

myF-1 ghapuk; (nghJg;ghapuk;> rpwg;Gg;ghapuk;)
.;

myF-2 vOj;jpay;.
;.

myF-3 gjtpay;

myF-4 caphPw;Wg; Gzhpay;.

myF-5 nka;aPw;Wg; Gzhpay;> cUG Gzhpay;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	ghapuk; jd;ikfis vLj;Jiug;gJ.	01
CO-2	vOj;jpd; jd;ikapid mwpe;J nfhz;ldh;	08
CO-3	gjtpaypy; gFgjk;;;;;; gfhgjk; gw;wpa nra;jpfis mwpe;J nfhz;ldh;	02
CO-4	capnuOj;Jf;fs; vt;thW GzUfpd;wd vd;gij mwpe;J nfhz;ldh;	02
CO-5	nka;naOj;Jf;fs; vt;thW GzUfpd;wd vd;gij mwpe;J nfhz;ldh;	02

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

ghlE}y;

1. MWKfehtyu; (c.M)> ed;D}y;-fhz;bifAiu> fof ntspaPL> nrd;id

ghu;it E}y;fs;;

1. NrJghz;bad;> re;jp tpjpfs; gpupj;jy;> kJiu fhkuhru; gy;fiyf;fof ntspaPL> kJiu.
2. jpUKUfd;> ,yf;fz vz;zq;fs;> ghtyu; gz;iz gjpg;gfk;> GJr;Nrup.
3. nr.it.rz;Kfk;> ,yf;fz cUthf;fk;> nka;ag;gd; gjpg;gfk;> rpjk;guk;
4. Kj;Jf;Fkud;> jkpo; kuG> rhtfr;Nrup> aho;g;ghzk;.

jhs; - 3 jkpo; ,yf;fpa tuyhW -1

Programme	: B.Lit.,	Course Code	: 18U1TL03
Semester	: I	No. of hrs	: 5
Course	**: Core**	**No. of Credits**	**: 4**

;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

Nehf;fk; : jkpofj;jpd; rpwg;GfisAk;> tzpfj;njhlh;GfisAk; rq;fk; gw;wpa cz;ikfisAk; njhpe;J;nfhs;Sjy;.
Nehf;fk; : gj;Jg;ghl;L vl;Lj;njhifapd; E}y; mikg;Gfis njhpe;Jf; nfhs;Sjy
Nehf;fk; : fPo;fzf;F E}y;fisAk;> fhg;gpaq;fisAk; mwpe;J; nfhs;Sjy.;
Nehf;fk; : ehad;khh;> Mo;thh;fspd; gf;jpj; jpwid mwpe;J; nfhs;Sjy
Nehf;fk; : ,yf;fz E}y;fis mwpe;Jf nfhs;Sjy;.

myF-1

jkpo;ehL- jkpopdk; - thzpfj; njhlu;G – jkpo; nkhop –Kr;rq;f tuyhW – gioa ,yf;fpar; rhd;Wfs; - fly;Nfhs;fs; - njhy;fhg;gpak; - ,yf;fz kuG

myF-2 gj;Jg;ghl;L - vl;Lj;njhif - mikg;G - mfKk; GwKk; - rq;ffhyk; jkpo; ,yf;fpa tuyhw;wpy; xU nghw;fhyk;.
;.

myF-3

gjpndz; fPo;f;fzf;F E}y;fs; - fhyk; - mfk; rhu;e;jJ – Gwk; rhu;e;jJ – mwk; rhu;e;jJ. Ik;ngUq;fhg;gpaq;fs; - IQ;rpW fhg;gpaq;fs;

myF-4

gf;jp ,yf;fpa ,af;fk; - ehad;khHfs; - irtj; jpUKiwfs; - Mo;thHfs; - ehyhapuj; jpt;ag; gpuge;jk; - ee;jpf;fyk;gfk; - Kj;njhs;shapuk; - fk;guhkhazk; - xsitahu; - fypq;fj;Jg;guzp – xl;lf;$j;ju;.
;.

myF-5

njhy;fhg;gpak; - ed;D}y; - ek;gpafg;nghUs; - ahg;gUq;fyk; - ahg;gUq;fyf;fhupif – tPuNrhopak; - jz;bayq;fhuk; - epfz;L E}y;fs; - ciu E}y;fs;.
;.

1.

CO No.	Upon completion of this course, students will be able to	PSOs addressed

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO-1	jkpof rpwg;G tzpfk;> tuyhw;Wr; rhd;Wfis njhpe;J; nfhs;Sjy;.	3
CO-2	rq;ffhyk; vt;thW ,Ue;jJ vd;gij mwpe;J; nfhs;Sjy;.	3
CO-3	fPo;fzf;F kw;Wk; fhy tiuaiw E}y;fisg; gw;wp mwpjy;	1
CO-4	gf;jp tsh;r;rp> jkpo; tsh;e;j Gyth;fspd; epiyfis mwpe;J nfhs;Sjy;	4
CO-5	,yf;fz E}y;fspd; NtWghLk;> mjd; epiyfis mwpe;J nfhs;Sjy;	2

ghl E}y;fs;

1. kJ.r. tpkyhde;jd; - jkpo; ,yf;fpa tuyhW>
2. Kidtu; rp.ghyRg;ukzpad; - jkpo; ,yf;fpa tuyhW> rhfpj;a mfhjkp> Njdhk;Ngl;il> nrd;id

ghu;it E}y;fs;

mUzhryk;. K - jkpo; ,yf;fpa tuyhW (E}w;whz;L thpirapy;)> jkpopay; Ma;T kw;Wk; ntspaPl;L epWtdk;> ,uhag;Ngl;il> nrd;id 14

jhs; - 4 jkpof tuyhWk; gz;ghLk; - I

Programme : B.Lit., Course Code : 18U1TLA01
Semester : I No.of hrs : 5

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

Course : Allied **No.of Credits : 4**

Nehf;fk;:
,yf;fpa tuyhW vOJtjw;F ,yf;fpak; mbg;gilahf miktjhy; mj;jifa tuyhw;iw czu;j;Jjy;.

Nehf;fk; : tuyhw;Wf;fhd mbg;gil Mjhuq;fisAk;> ,aw;if mikg;GfisAk; njhpe;Jf; nfhs;Sjy;.
Nehf;fk; : tuyhw;Wf;F Ke;ija jkpofj;jpidAk; rpe;Jrkntsp mfo;tuha;r;rp cz;ikfisAk; njhpe;Jf; nfhs;Sjy
Nehf;fk; : Kr;rq;fq;fisAk;> jkpo; tsh;e;j tpjj;jpidAk; njhpe;Jf; nfhs;Sjy

Nehf;fk; : fsug;gpuh;fisAk; gy;yth; fhy jkpoh;fspd; tho;f;if epiyapid mwpe;J nfhs;Sjy
Nehf;fk; : 4-Mk; Kjy; 9 Mk; E}w;whz;L tiu ,Ue;j r%f cz;ikfis njhpe;J nfhs;Sjy

myF - 1
jkpof tuyhw;Wf;fhd mbg;gil Mjhuq;fs; ,yf;fpaq;fs; - ,yf;fzq;fs; - jkpofj;jpd; ,aw;if mikg;Gfs; - fy;ntl;Lfs; - nrg;NgLfs; - njhy;nghUsha;Tfs; - nkhopapay; Ma;Tfs;.
;.

myF – 2
tuyhw;Wf;F Ke;ija jkpofk; - rpe;Jrkntsp mfo;thuha;r;rp – gz;ilj;jkpoupd; may;ehl;Lj; njhlu;Gfs;.
;.

myF-3
jkpo; tsHj;j rq;fk; - rq;f fhyk; - gz;ilj; jkpohpd; tho;f;if - r%fk;> murpay;> fiy
;.
;.

myF-4
fsg;gpuHfs; - gy;ytHfs; fhyj; jkpoHfs; tho;f;if - ,yf;fpak; - murpay;> fiy
.
.

myF-5
jkpofj;jpy; 4Mk; E}w;whz;L Kjy; 9Mk; E}w;whz;L tiuapy; r%fepiy - murpay;epiy - fiyepiy - ,yf;fpa Mf;fk;
;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jkpof kf;fspd; tuyhw;wpid mwpa gad;gLfpwJ	1
CO-2	jkpof Ke;ija epiy> fhyR+o;epiyfis mwpe;Jf; nfhs;Sjy;	3
CO-3	rq;fk; tsh;e;j tpjq;fis mwpe;Jf; nfhs;Sjy;	4
CO-4	Ml;rp Kiw fhytiuaiwia mwpe;Jf; nfhs;Sjy;	3
CO-5	E}w;whz;Lfspd; khw;wk; gw;wp mwpe;Jf; nfhs;Sjy;	1

ghl E}y;;

1. Nf.Nf. gps;is - jkpof tuyhWk; gz;ghLk;> cyfj;jkpohuha;r;rp epWtdk;> jukzp> nrd;id.

ghu;it E}y;fs;

2. m. jl;rpzh%Hj;jp - jkpoH ehfhpfKk; gz;ghLk;> aho; ntspaPL> Nkw;F mz;zhefu;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jhs;: 5 Nahfh kw;Wk; gapw;rp

Programme : B.Lit., Course Code : 18U1VE01

Semester : I No.of hrs : 2

Course : SBEC IV No. of Credits : 1

Nehf;fk; : vspa clw;gapw;rpfisAk;> Nahfrd KiwfisAk; njhpe;Jf; nfhs;Sjy;.
Nehf;fk; : ghY}zh;T> Md;kpfk;> kdq;fspd; gbepiyfisj; njhpe;Jf; nfhs;Sjy;.
Nehf;fk; : tho;tpd; Nehf;fj;jpidAk; vz;zj;jpidAk; njhpe;Jf; nfhs;Sjy;.
Nehf;fk; : kdjpy; Vw;gLk; ftiyfis xopf;Fk; Kiwia njhpe;Jf; nfhs;Sjy;.
Nehf;fk; : gad;ghl;Lf; fy;tp Kiw kdj;jpid J}a;ikg;gLj;Jk; Kiwia mwpe;J nfhs;Sjy;.

myF 1 : NahfKk; cly;eyKk;

clyikg;G - vspaKiw clw;gpaw;rp - kfuhrdk; - Nahfhrdq;fs;;.

myF 2 : caph;tsKk; kdtsKk;

,sikfhj;jy; - ghYzHTk;> Md;kPfKk; - kdq;fspd; 10 gbepiyfs; - kd miyr;Roy;.

myF 3 : Fzeyg;NgW

tho;tpd; Nehf;fk; - vz;zk; Muha;jy; - Mir rPuikj;jy; - rpdk; jtpHj;jy;.

myF 4 : kdpjts Nkk;ghL

ftiy xopj;jy; - tho;j;Jk; gaDk; - el;G eyk; - jdpkdpj mikjp.

myF 5 : ,aw;if epajp

nray;tpisTj; jj;Jtk; - kdj;J}a;ik> tpidj;J}a;ik - md;Gk; fUizAk; - gz;ghl;Lf; fy;tp

gapw;rp Neuk;: thuk; xU kzp Neuk; nkhj;j kzpfs; - 5 kzpNeuk;

nra;Kiwg;gapw;rp

1. ifg;gapw;rp 2. fhy; gapw;rp
3. euk;G jirehu; gapw;rp 4. fz;gapw;rp
5. fghygjp 6. fkuhrdk; (Kjw; gFjp> ,uz;lhk; gFjp)
7. clk;igj; Nja;j;J tpLjy; (krh[;) 8. mf;Fgpuru; gapw;rp

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

9. clk;igj; jsu;j;Jjy; my;yJ Xa;T jUk; gapw;rp

1. gj;khrdk; 2. t[;uhrdk; 3. rf;uhrdk; (gf;fthl;by;) 4.tpr;rhdk; (Vfghjhrdk;) 5. NahfKj;uh 6. gr;rp Nkhj;jhrdk; 7.c];uhrdk; 8.tf;uhrdk; 9. ryghrdk;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	khzth;fis clw;gapw;rpapy; <Lgl mwpe;J nfhz;ldh;	9
CO-2	kdpj kdepiyia xUepiyg;gLj;Jjy;	9
CO-3	kdpj tho;tpd; epiyia njhpe;Jf; nfhs;Sjy;	7
CO-4	tho;f;if khw;wk; Fwpj;J mwpe;J nfhs;Sjy;.	9
CO-5	,aw;if gad;ghl;ilAk;> ehfhpj;ijAk; mwpe;J tho;f;if Kiwia khw;wpf;nfhs;Sjy;	9

ghl E}y;: Uj;u rhe;jp Nahfh> Nahfuj;dh> Mu;.gp. fpU\;zFkhu;. v];.vy;.vy;. mwf;fl;lis> GJf;Nfhl;il.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jhs; - 6 gf;jp ,yf;fpak;

Programme	: B.Lit.,	Course Code	: 18U2TL04
Semester	: II	No. of hrs.	: 5
Course	**: Core**	**No. of Credits**	**: 4**

Nehf;fk; : %th; Njthuj;ij mwpe;J nfhs;Sjy.;
Nehf;fk; : irt mbahh;fspd; gf;jp jpwj;ij mwpe;J nfhs;Sjy;.
Nehf;fk; : irt Guhz fijfis czh;j;Jjy;.
Nehf;fk; : itzt fUj;Jf;fis Mo;thh;fs; %yk; mwpjy;.
Nehf;fk; : mwnewp top ,iwnewpfis czh;j;jy;.

myF-1

jpUQhdrk;ge;jH Njthuk; -jpUthtLJiwg; gjpfk;-,lhpDk; jshpDk; - 11 ghly;fs; Re;juH Njthuk; - jpUntz;nza;ey;Y}h;g; gjpfk;
jpUehTf;furu; Njthuk; - 'tplk;jPh;j;jgjpfk;' - xd;Wnfhyhkth; - 10 ghly;fs;

myF-2

khzpf;fthrfH – jpUgs;spnaOr;rp (Nghw;wp vd; tho;Kjy; -10 ghly;fs;)
jpU%yu; - jpUke;jpuk; (Kjy; je;jpuk; Kjy; 20 ghly;fs;)
fhiuf;fhyk;ikahh; - %j;jjpUthyhq;fhl;Lg; gjpfk; (1 Kjy; 22 ghly;fs;)

myF-3

nghpaGuhzk; - fz;zg;gehadhu; Guhzk;;
jpUtpisahlw;Guhzk; - fhy;khwp MbaJ> kz;Rke;jJ.

myF-4

Mz;lhs; - jpUg;ghit (Kjy; 10 ghRuq;fs;)
nghpaho;thH - jpUg;gy;yhz;L (Kjy; 10 ghRuq;fs;)
ek;kho;thH -Mwhk; gj;J 1 Mk;jpUtha;nkhop itfy;G+q;fop(1Kjy; 11

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

ghRuq;fs;)

myF-5

jhAkhdtH – md;gh; newp (12 fz;zpfs;)

mwpQh; newp – 14 fz;zpfs;> epw;Fk; epiy (28 fz;zpfs;)

mUefphpehjh; - fe;juyq;fhuk; - (Kjy; 10 ghly;fs;)

rptthf;fpah; - mwpTepiyg;ghly;fs; (33 Kjy; 44 tiu)

;.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	irt Kiwfis ehad;khh;fs; top mwpe;J nfhs;Sjy;	4
CO-2	irt Kiwfis ehad;khh;fs; top mwpe;J nfhs;Sjy;	4
CO-3	irt Guhzq;fspd; tuyhw;wpid mwpe;J nfhs;Sjy;	4
CO-4	itzt fUj;Jf;fis Mo;thh;fs; top mwpar;nra;jy;	4
CO-5	gf;jpia mwnewp top tsh;j;j md;gh;fspd; fUj;ij mwpe;J nfhs;Sjy;.	4

ghHit E}y;fs;

1. ngupa Guhzk; %yKk; njspTiuAk; Kjy; njhFjp> t.jh.,uhkRg;gpukzpak;> jpUkfs; epiyak;> jp.efu;> nrd;id -17
2. jpU%yupd; jpUke;jpu tpUe;J> rk;ge;jk;> jpUtuR Gj;jf epiyak; > jp.efu;> nrd;id
3. ehyhapu jpt;tpagpuge;jk; %yKk; njspTiuAk;> Kjy; Mapuk;. – ehuhaz NtYg;gps;is (c.M)> Ky;iy epiyak;> jp.efu;. nrd;id -17

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jhs; - 7 ,yf;fzk; ed;D}y; - nrhy;yjpfhuk;

Programme : B.Lit., Course Code : 18U2TL05
Semester : II No.of hrs : 6
Course : Core No. of Credits : 4

Nehf;fk;

ed;D}y; nrhy;yjpfhu E}w;ghf;fis ciuahrphpah; ciufspd; JizNahL tpsq;fpf; nfhs;Sjy;

Nehf;fk; : ngah;nrhw;fis fw;Wj;jUjy;

Nehf;fk; : tpidr;nrhw;fs;> tiffis czh;j;Jjy;

Nehf;fk; : nrhw;fspd; tiffis fw;Wj;jUjy;.

Nehf;fk; : ,ilr;nrhw;fs; mtw;wpd; jd;ikfis tpsf;Fjy;.

Nehf;fk; : chpr;nrhw;fs; mtw;wpd; jd;ikfis tpsf;Fjy;.

myF-1 ngahpay;
.;
myF-2 tpidapay;

myF-3 nghJtpay;

myF-4 ,ilapay;

myF-5 chpapay;
>

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	ngah;fspy; cs;s khw;wq;fis mwpe;J nfhz;ldh;	1
CO-2	tpidnrhw;fshy; Vw;gLk; khw;wq;fis czh;e;J nfhz;ldh;	2
CO-3	nrhw;fspy; Vw;gLk; khw;wq;fis tpsq;fpf;nfhz;ldh;.	2
CO-4	,ilr;nrhw;fs; gw;wp mwpe;J nfhz;ldh;	5
CO-5	cupr; nrhw;fspd; rpwg;gj; jd;ikia mwpe;Jf; nfhz;ldh;	2

ghlE}y;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

1. MWKf ehtyu; (c.M)> ed;D}y; - fhz;bifAiu> fof ntspaPL> nrd;id.

ghu;it E}y;fs;

1. ,];Nuay;. Nkh.> ,ilAk; cupAk;> rpe;jhkzp ntspaPL> kJiu.
   ky;ypfh> ,yf;fz kugpy; ,ilr;nrhw;fs;> Nfhapy;kuzk; ntspaPL> ghyf;fhL

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jhs; - 8 jkpo; ,yf;fpa tuyhW – II

(Nrhou; fhyk; Kjy; ,f;fhyk; tiu)

Programme : B.Lit., Course Code: 18U2TL06
Semester : II No. of hrs : 5
Course : Core No. of Credits : 4

Nehf;fk;:

,yf;fpak; fw;Fk; khzth;fs;> Kjypy; mjd; tuyhw;iw mwpe;J nfhs;tJ ,d;wpahikahjJ. njhd;ikf;fhyj; jkpo; ,yf;fpa ,yf;fzq;fspd; tuyhw;wpid mwpe;Jnfhs;tJ ,g;ghlj;jpl;lj;jpd; Nehf;fkhFk;.

Nehf;fk; : jkpo;nkhopf;F ciuahrphpah;fs; nra;j njhz;Lfis czh;j;Jjy;.
Nehf;fk; : rpw;wpyf;fpaq;fs;> rpj;jh;fspd; epiyia czh;j;jy;.
Nehf;fk; : INuhg;gpah;fspd; jkpo;g;gzpia czh;j;jy;.
Nehf;fk; : jkpo;nkhopf;F ciuahrphpah;fs; nra;j njhz;Lfis czh;j;Jjy;.
Nehf;fk; : fhyj;jpw;Nfw;g ,yf;fpaq;fs; khw;wkiltij czh;j;jy;.

myF - 1

ciuahrpupau;fs; - ,sk;G+uzu; - Nguhrpupau; -- mbahu;f;F ey;yhu; - gupNkyofu; - irt klq;fs; - jpUthtLJiw klk; - jUkGuk; klk; - jpUg;gde;jhs; klk; - kJiu klk; - tPuirt klk;.

myF-2

ehaf;fH fhyk; - rpw;wpyf;fpaq;fs; - gl;bdj;jhH - rpj;jHfs;> mUzfphpehjH – jhAkhdtH - fhsNkfk; - ,ul;ilg; GytHfs;.

myF-3

INuhg;gpaH fhyk; - jj;Jt NghjfH> tPukhKdptH rPfd;ghyF> [p.A.Nghg;> fhy;Lnty;> vy;yP];> khA+uk; Ntjehafk; gps;is> vr;.V. fpUl;bzg;gps;is> - Ntjehafk; rh];;jpupahu;.

myF-4

,Ryhkpa ,yf;fpaq;fs; - ts;syhu; - kPdhl;rpRe;juk; gps;is – MWKfehtyu; - rp.it.jhNkhjuk;gps;is – c.Nt.rh – gz;bjkzp – itahGupg;gps;is – kiwkiyabfs; - jpU.tp.f. .

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

myF-5

,f;fhyk; - kuGf;ftpij> GJf;ftpij> rpWfij> ehlfk;> ciueil tsHr;rp.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	ciuahrphpah;fspd; ciu tuyhw;;;;iwAk;> klq;fspd; jkpo;j;njhz;bidAk; gjpT nra;jy;	1
CO-2	ehaf;fh; fhy ,yf;fpaq;fis mwpar;nra;jy;	6
CO-3	jkpOf;Fj; njhz;lhw;wpa gpw ehl;bdhpd; jkpo;g;gzpia mwpe;J nfhs;Sjy;	8
CO-4	jkpo;nkhopia rPh;gLj;jpa jkpo;r;rhd;Nwhh;fs; gw;wp mwpe;J nfhs;Sjy;	1
CO-5	,f;fhy ,yf;fpaj;jpd; tsh;r;rp epiyia mwpjy;	8

ghl E}y;fs;

1. kJ.r. tpkyhde;jd; - jkpo; ,yf;fpa tuyhW>
2. Kidtu; rp.ghyRg;ukzpad; - jkpo; ,yf;fpa tuyhW> rhfpj;a mfhjkp> Njdhk;Ngl;il> nrd;id

ghu;it E}y;fs;

1. mUzhryk;. K - jkpo; ,yf;fpa tuyhW (E}w;whz;L thpirapy;)> jkpopay; Ma;T kw;Wk; ntspaPl;L epWtdk;> ,uhag;Ngl;il> nrd;id 14

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jhs; - 9 jkpof tuyhWk; gz;ghLk; - II

(Nrhou; fhyk; Kjy; ,f;fhyk; tiu)

Programme : B.Lit., Course Code : 18U2TLA02
Semester : II No.of hrs : 5
Course : Allied No.of Credits : 4

Nehf;fk;:

jkpof murpay; kw;Wk; gz;ghl;L tuyhw;Wld; jkpopyf;fpa tsHr;rp epiyf;fhd njhlHgpid khztHfSf;F czHj;Jjy;

Nehf;fk; : NrhoHfhy kf;fspd; epiyfis czh;j;jy;.

Nehf;fk; : ghz;bah;fspd; murpay; epiyia czh;j;jy;.

Nehf;fk; : ehaf;fHfspd; tho;f;if KiwiaAk; ehfhPfj;ijAk; czHjy;.

Nehf;fk; : fpwpj;JtHfspd; jkpo; njhz;bid czur; nra;jy;.

Nehf;fk; : tpLjiyf;Fg; gpd; jkpofj;jpd; murpay; epiyia czh;j;jy;.

myF - 1

NrhoHfhyk; mwpKfk;> fiy> ,yf;fpak;> kf;fs; tho;f;if Kiw

myF - 2

gpw;fhyg; ghz;baH Vw;wKk; tPo;r;rpAk; - khypf;fhG+H gilnaLg;G - ghz;baH cl;NghH - fiy> ,yf;fpak;> kf;fs; tho;f;if Kiw

myF - 3

kJiu ehaf;fHfs; - murpay;> fiy - ,yf;fpa tsHr;rp - kf;fs; tho;f;if

myF - 4

INuhg;gpaH fhyk; - fH;ehlfg; NghHfs; - ghisaf;fhuHfs; - fpwpj;jtHfs; rkag;gzpAk; ,yf;fpag;gzpAk; - tpLjiyg;NghH - kf;fs; tho;f;if epiy.

myF - 5

tpLjiyf;Fg; gpe;ija jkpofk; - ePjpf;fl;rp - jpuhtplH ,af;fk; - jdpj;jkpo; ,af;fk; - nkhopAzHT - murpay; epiy - kf;fs; tho;f;if epiy.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Nrhoh;fhy jkpofj;ij mwpar; nra;jy;	1
CO-2	ghz;bah; fhy gilnaLg;Gk; Ml;rpj;jpwdiAk; mwpar; nra;jy;	3
CO-3	ehaf;fh; fhy rKjha epiyia khzth;f;F mwpe;J nfhz;ldh;	6
CO-4	jkpofj;jpy; may;ehl;lth; jhf;fk; Fwpj;J khzth; mwpjy;	1
CO-5	tpLjiyf;Fg; gpd; kf;fs; tho;f;if epiyia czh;j;Jjy;	3

ghl E}y;;

1. Nf.Nf. gps;is - jkpof tuyhWk; gz;ghLk;> cyfj;jkpohuha;r;rp epWtdk;> jukzp> nrd;id.

ghu;it E}y;fs;

2. m. jl;rpzh%Hj;jp - jkpoH ehfhpfKk; gz;ghLk;> aho; ntspaPL> Nkw;F mz;zhefu;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jhs;: 10 tho;f;if kjpg;gPLfs;

Programme: B.Lit., Course Code : 18U2VE02
Semester : II No.of hrs : 2
Course : IV **No.of Credits : 1**

Nehf;fk;:

tho;tpd; ntw;wpiaj; jPu;khdpf;Fk; kjpg;Gfspd; %ykhf tho;f;ifapd; nghUisAk; Kf;fpaj;Jtj;ijAk; Nghjpg;gJ.

Nehf;fk; : kjpg;Gfspd; tiffs;> mZFKiwfs;> fhuzpfis czHjy;.
Nehf;fk; : kjpg;Gfspd; Kf;fpaj;Jtj;ijAk; nray; Cf;fg; gapw;rp KiwfisAk;
Nehf;fk; : mfpk;ir kw;Wk; Md;kpf kjpg;Gfisf; fw;Wf;nfhLj;jy;.
Nehf;fk; : rNfhjuj;Jtk;> rfpg;Gj;jd;ikia fw;Wj;jUjy;.
Nehf;fk; : r%f elj;ijfis fw;Wf;nfhLj;jy;.

myF – 1 kjpg;Gfs;

mwpKfk; - nghUs;> Nehf;fk;> kjpg;Gfspd; Mjhuq;fs; kw;Wk; kjpg;Gfspd; tiffs; - kjpg;GfsJ tPPo;r;rpf;fhd fhuzpfs;> nray;Kiwfs;> mZFKiwfs; kw;Wk; kjpg;Gfspd; tPo;r;rpiaj; jPu;khdpf;Fk; fhuzpfs;.

myF - II jdpkjpdpj kjpg;Gfs;

jd;dk;gpf;if – nghUs;> Kf;fpaj;Jtk;> mbg;gil topKiwfs;> RanraY}f;fr; nray;ghL – Ra nraY}f;ff; $Wfs; - Nehf;fq;fs; - Ra nraY}f;fg; gapw;rp Kiwfs;.

czHjy;.

myF – III mwnewp kw;Wk; Md;kPf kjpg;Gfs;:

gw;wpd;ik – khwh kdKilik – mfpk;ir – fPo;g;gbjy; - ,iwNtz;ly; - J}a;ik – jd;dy kWg;G kw;Wk; cz;ikAilik.

myF – IV r%f kjpg;Gfs;:

gjpy; nrhy;Yk; nghWg;G – rNfhjuj;Jtk; - #oypay; Fwpj;j mf;fiw – et ehfupfk; - ciuahly; - flikAzu;T – kd;dpg;G – Rje;jpuk; - el;GwT – ed;wpAzu;T – tpUe;N;jhk;gy; - ePjp> md;G –

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

nghWik – nghWg;G – Nrit - ,uf;f czu;T – $l;nlhUik czu;T – rfpg;Gj; jd;ik - gfpu;T kw;Wk; tpisahl;Lg; Nghl;b czu;T.

myF – V gofpay; kjpg;Gfs; kw;wk; jiyikg; gz;G:

ey;nyhOf;fj;jpd; nghUs;> tiffs; kw;Wk; mbg;gilfs;> cz;Zk; xOf;f Kiwfs; kw;Wk; rhJupaKk; gz;G eaKk;> Nkyjpfhupaplk; fbjj; njhlu;gpdpy; rKjhaj;jpy; gof;f tof;fKk; kw;Wk; elj;ijfSk;.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	kjpg;Gfspd; tiffs;> mZFKiwfs;> fhuzpfis mwpe;J nfhs;Sjy;	7
CO-2	kdpj kjpg;Gfspd; Kf;fpaj;Jtj;ij mwpe;J nfhz;ldh;.	7
CO-3	mfpk;ir kw;Wk; Md;kpf kjpg;Gfisf; fw;Wg; gadile;jdh;	6
CO-4	rNfhjuj;Jtk;> rfpg;Gj;jd;ik kw;Wk; flikAzh;it Ghpe;Jnfhz;ldh;.	7
CO-5	r%f ey;nyhOf;fq;fis fw;Wg; gadile;jdh;.	3

ghl E}y;fs;

1. tho;tpay; tsk;ngw (210) Kidtu; r.,d;dhrpKj;J> Nr.r> itfiwg;gjpg;gfk;> nrd;id.
2. tho;tpy; ntw;wp ngw> Kidtu; r.,d;dhrpKj;J Nr.r.> itfiwg; gjpg;gfk;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jhs;: 11 Rw;Wr;#oypay;

Programme : B.Lit., Course Code : 18U2TES01
Semester : II No.of hrs : 2
Course : IV **No.of Credits : 1**

Nehf;fk; : ,aw;ifapd; Kf;fpaj;Jtj;ij czh;j;Jjy;.

Nehf;fk; : #o;epiy kz;lyj;jpd; Mw;wiyf; fw;Wf;nfhLj;jy;

Nehf;fk; : Rw;Wg;Gw khRghLfs; Fwpj;j tpopg;Gzh;it Vw;gLj;jy;.

Nehf;fk; : Gtp ntg;gkiljy; Fwpj;j tpopg;Gzh;it Vw;gLj;jy;.

Nehf;fk; : Rw;Wr;#oy; ghJfhg;Gr; rl;lq;fs; Fwpj;J tpsf;Fjy;.

myF 1:

Rw;Wr; #oy; - tpsf;fk; - Rw;Wr; #oypd; mq;fq;fs; - kdpjDk; Rw;Wr; #oYk; - ,aw;if tsq;fs; - fhl;L tsk; - ePHtsk; - jhJtsk;.

myF : 2

czT tsq;fs; - Mw;wy; tsq;fs; - epy tsq;fs; - #o;epiy kz;lyk; - Mf;ff; $Wfs; - #o;epiy kz;lyj;jpd; czT epiyfs; - #o;epiy kz;lyj;jpd; tiffs;.

myF : 3

gy;Yaphpd; NtWghLk; mjd; ghJfhg;Gk; - fhw;W khRghL - ePH> kz;> fly; ePH khRghL.

myF : 4

,iur;ry; khRghL - mdy; khRghL - mZf;fjpH tPr;R khRghL - jplf;fopT Nkyhz;ik - rKjhag; gpur;ridfSk;> Rw;Wr; #oYk; - gRq;$l tpisTk; cyfr; #Nlw;wKk;.

myF : 5

mkpy kio - XNrhDk; mjd; FiwjYk; - Rw;Wr;#oy; ghJfhg;Gr; rl;lq;fs; - kf;fs; njhifg; ngUf;fKk; Rw;Wr; #oYk;.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Rw;Wr; #oiyg; ghJfhf;Fk; Kiwfisg; gw;wpkhztHfs; mwpar; nra;jy;.	9
CO-2	czTtsq;fspd; Nkk;ghL Fwpj;J khzth;fis mwpar; nra;jy;	9
CO-3	khRghL Fwpj;j tpopg;Gzh;it khzth;fs; mwpar; nra;jy;	9
CO-4	Rw;Wg;Gw khRghL cyf ntg;g kakhf fhuzk; vd;gjid mwpar; nra;jy;	9

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO-5	Rw;Wg;Gw rPh;Nfl;lhy; ,aw;ifapy; Vw;gLk; khw;wj;ij mwpar; nra;jy;	9

ghlE}y;:

1. Nguh. N[. jHkuh[; - Rw;Wr; #oy; ,af;fk; - nld;rp gg;spNf\d;];> nld;rp tpy;yh> 6/229> mz;zhkiyahH fhydp> rptfhrp - 626 123.

ghHit E}y;fs;:

1. lhf;lH. Rrpyh mg;ghJiu : ‘Rw;Wr; #oy; fy;tp’
epA+ nrQ;Rhp Gf; `T];>
41> gp> rpl;Nfh ,z;l];bhpa]; v];l;Nll;>
mk;gj;J}H> nrd;id - 600 098.

2. ,uh. gRikf;FkhH : ‘jkpof Rw;Wr; #oy;’
jhkiu gg;spNf\;d;]; gpiuNtl; ypkpnll;>
41> gp> rpl;Nfh ,z;l];bhpa]; v];Nll;>
mk;gj;J}H> nrd;id - 600 098.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

%d;whk; gUtk;
jhs; - 12
mw ,yf;fpak;

Programme : II B.Lit., Course Code : 18U3TL07
Semester : III No.of hrs : 5
Course : Core No.of Credits : 4

Nehf;fk; : Kg;ghy; ngUikia mwpar;nra;jy;.

Nehf;fk; : ehybahh; czh;j;Jk; mwnewpf; fUj;Jf;fisf; fw;Wf;nfhLj;jy;.

Nehf;fk; : gonkhopfs; top mwk; rhh;e;j fUj;Jf;fisf; fw;Wf;nfhLj;jy;.

Nehf;fk; : ehl;LkUj;Jtj;jpd; kfj;Jtj;ijf; fw;Wj;jUjy;.

Nehf;fk; : tho;ehspy; kdpjd; nra;td,kw;Wk; nra;a$lhjitfisf; fw;Wf;nfhLj;jy;.

myF – 1 jpUf;Fws;

mwj;Jg;ghy; - md;Gilik (mjpfhuk; 8)> Gfo; (mjpfhuk; 24)

nghUl;ghy; - typawpjy; (mjpfhuk; 48). kbapd;ik (mjpfhuk; 61)

,d;gj;Jg;ghy; - Fwpg;gwpjy; (mjpfhuk; 110)> neQ;NrhL fpsj;jy;

(mjpfhuk; 125)

myF – 2 ehybahh;

rpdk; ,d;ik (mjpfhuk; 7)> mwpTilik (mjpfhuk; 25)

myF – 3 gonkhop ehD}W

nra;As;fs; 81- 90. 221-230

myF – 4 Vyhjp> rpWgQ;r%yk;

Vyhjp – nra;As;fs; 1- 10. rpWgQ;r%yk; - nra;As;fs; 11 – 20

myF – 5 ,d;dh ehw;gJ> ,dpait ehw;gJ

,d;dh ehw;gJ – nra;As;fs; 1 – 10>

,dpait ehw;gJ nra;As;fs; 21 – 30

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	cyfg; nghJkiw $Wk; mwf;fUj;ij mwpar; nra;jy;	6
CO-2	jdpkdpj tho;Tf;F Njitahd xOf;fq;fis khztHfs; mwpar; nra;jy;.	3

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO-3	fhye;NjhWk; khwptUk; gonkhop ,yf;fpaj;ij khzth;fs; mwpjy;	3
CO-4	kUe;JnghUl;fisf; nfhz;L mwf;fUj;Jf;fis khzth;fs;; kdjpy; tpijj;jy;	6
CO-5	mwk;> mwkw;wJ vit vd;gjid khzth;fs; mwpar;nra;jy**;**	6

ghlE}y;fs;

1. jpUf;Fws; - ghpNkyofh; ciu> Gjpa gjpg;G 2007> jpUney;Ntypj; njd;dpe;jpa irt rpj;jhe;j E}w;gjpg;Gf; fofk;> nrd;id.
2. ghyRe;juk; gps;is. jp.R. (c)> ehybahh;> Gjpa gjpg;G 2007> jpUney;Ntypj; njd;dpe;jpa irt rpj;jhe;j E}w;gjpg;Gf; fofk;> nrd;id.
3. ,uhrkhzpf;fk; gps;is> k. (c) gonkhopehD}W> Gjpa gjpg;G 2007> jpUney;Ntypj; njd;dpe;jpa irt rpj;jhe;j E}w;gjpg;Gf; fofk;> nrd;id.
4. ghyRe;juk; gps;is> jp.R (c). Vyhjp> Gjpa gjpg;G 2007> jpUney;Ntypj; njd;dpe;jpa irt rpj;jhe;j E}w;gjpg;Gf; fofk;> nrd;id.
5. Gd;idtdehj Kjypahh; > G.rp.> (c)> rpWgQ;r%yk;> Gjpa gjpg;G 2007> jpUney;Ntypj; njd;dpe;jpa irt rpj;jhe;j E}w;gjpg;Gf; fofk;> nrd;id.
6. Ntq;flrhkp ehl;lhh;> e.K.> (c) (,d;dhehw;gJ> ,dpait ehw;gJ> fstopehw;gJ)> Gjpa gjpg;G 2007> jpUney;Ntypj; njd;dpe;jpa irt rpj;jhe;j E}w;gjpg;Gf; fofk;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jhs; - 8 ,yf;fzk; - III

ek;gpafg;nghUSk; Gwg;nghUs; ntz;ghkhiyAk;

Programme : B.Lit., Course Code : 18U3TL08
Semester : III No.of hrs : 6
Course : Core No.of Credits : 4

Nehf;fk; :

mfg;nghUisAk; Gwg;nghUisAk;; khztHfSf;F czHj;Jjy;

myF - 1

ek;gpafg;nghUs; - mfj;jpizapay;> fstpay;

myF - 2

tiutpay;> fw;gpay;>

myF - 3

Gwg;nghUs; ntz;ghkhiy

ntl;rp> fue;ij> tQ;rp

myF - 4

fhQ;rp> nehr;rp> copiQ

myF - 5

Jk;ig> thif> ghlhz;> nghJtpay;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	mfg;nghUspy; fsT epfo;Tfis khztHfSf;F czHj;Jjy;	3
CO-2	fw;gpay; Fwpj;j epfo;Tfis khztHfSf;F czHj;Jjy	3
CO-3	Nghu; Kiwfis gw;wp khztHfs; mwpar; nra;jy;.	2
CO-4	goikahd Nghh; gbepiyfis czHj;Jjy;	2
CO-5	goikahd Nghh; gbepiyfis czHj;Jjy;	2

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

ghlE}y;:

1. ek;gpafg;nghUs; - fofg; gjpg;G> jpUney;Ntyp njd;dpe;jpa irt rpj;jhe;j E}w;gjpg;Gf; fofk;> jpUney;Ntyp

ghu;it E}y;fs;:

1. Rg;Gnul;bahu;> mfj;jpizf; nfhs;iffs;> ghup epiyak;> nrd;id.
2. ,sq;Fkudhu;> jkpou; tho;tpay; ,yf;fzk;> mkpo;jk; gjpg;gfk;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jhs; 9 - ,yf;fpaj; jpwdha;tpay;

Programme : B.Lit., Course Code : 18U3TL09
Semester : III No.of hrs : 5
Course : Core No.of Credits : 4

Nehf;fk;:

XH ,yf;fpaj;jpd; KOj;jpwDk; mjd; jpwdha;tpy;jhd; ntspg;glKbAk; vd;w nfhs;iff;Nfw;g ,yf;fpak; gapy;NthHf;F mtw;iw kjpg;gpLtjw;fhd top Kiwfisf; fhl;LtNj ,g;ghlj;jpd; Nehf;fkhFk;.

myF - 1

,yf;fpa Ma;T - jpwdha;T - jpwdha;tpd; ,Utifg; gzp -jpwdha;T ,yf;fpak; - ,yf;fpa kjpg;gPL - ,yf;fpaf; fiy

myF - 2

,yf;fpa czh;r;rpfs; - fw;gid – khdpl cz;ikfs;

myF - 3

tbtk; - fiy fiyf;fhfNt

myF - 4

fhg;gpak; - ehlfk; - Gjpdk; - edNthilg; Gjpdk;

myF - 5

rpWfij - fl;Liu - ,yf;fpa ,af;fq;fs;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jpwdha;jy; Fwpj;j tpopg;Gzh;it khzth;fs; mwpar;nra;jy;	5
CO-2	,yf;fpa cj;jp Kiwfis mwpar; nra;jy;	3
CO-3	,yf;fpa mbg;gil Nfhl;ghLfis czh;j;Jjy;	1
CO-4	ehlf ,yf;fpa tiffis mwpar;nra;jy;	8

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO-5	etPd fhy ,yf;fpa tiffis czh;j;Jjy;	8

ghlE}y;

1. jh.V.Qhd%u;j;jp> ,yf;fpaj; jpwdha;T> Ie;jpizg; gjpg;gfk;> ghujp rhiy. jpUty;ypf;Nfzp. nrd;id.

ghHit E}y;fs;

1. lhf;lH K. tujuhrd; - ,yf;fpaj;jpwd;> ghhpepiyak;> nrd;id
2. lhf;lH K. tujuhrd; - ,yf;fpakuG> ghhpepiyak;> nrd;id.
3. m.r. Qhdrk;ge;jd; - ,yf;fpaf;fiy - ghhp epiyak;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jhs; 10 - rpw;wpyf;fpaq;fs;

Programme : B.Lit., Course Cod : 18U3TL10

Semester : III No.of hrs : 5

Course : Core No.of Credits : 4

Nehf;fk;:

jkpo;r; rpw;wpyf;fpaq;fs; 96 tifAs; ,d;wpaikahj 10 tiffspy; mike;jpUf;Fk; nrhw;Rit> nghUl;Rit> ahg;Geyd; Nghd;w $Wfis khztu;fSf;F czu;j;Jjy

myF-1

ee;jpf;fyk;gfk; (1- 75 ghly;fs;)

myF-2

fypq;fj;Jg;guzp – Nga; ghbaJ> fsk; ghbaJ.

myF-3

Fw;whyf; FwtQ;rp

,iwtdpd; jpUTyh> tre;jty;ypapd; fhjy;> FwtQ;rp ehlfk;

myF-4

jkpo;tpL J}J (1 – 150 fz;zpfs;)

myF-5

Kf;$lw;gs;S (1 – 100 ghly;fs;)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	rpw;wpyf;fpa tiffspy; fyk;gfk;; gw;wpa ,yf;fpa tiffis khztu;fSf;F czu;j;Jjy;	6
CO-2	rpw;wpyf;fpa tiffspy; guzp gw;wpa ,yf;fpa tiffis khztu;fSf;F czu;j;Jjy;	6
CO-3	rpw;wpyf;fpa tiffspy; cyh gw;wpa ,yf;fpa tiffis khztu;fSf;F czu;j;Jjy;	6
CO-4	rpw;wpyf;fpa tiffspy; J}J gw;wpa ,yf;fpa tiffis khztu;fSf;F czu;j;Jjy;	6

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO-5	rpw;wpyf;fpa tiffspy; gs;S gw;wpa ,yf;fpa tiffis khztu;fSf;F czu;j;Jjy;	6

ghl E}y;fs;

1. fypq;fj;Jg;guzp> Q.khzpf;fthrfd;> ckh gjpg;gfk;> nrd;id
2. Kf;$lw;gs;S> Kidtu; fjpu; KUF> rhujh gjpg;gfk;> nrd;id - 14.
3. jkpo;tpL J}J> Kidtu; fjpu; KUF> rhujh gjpg;gfk;> nrd;id - 14.
4. ee;jpf;fyk;gfk;> Kidtu; fjpu; KUF> rhujh gjpg;gfk;> nrd;id - 14.
5. Fw;whyf; FwtQ;rp> Kidtu; fjpu; KUF> rhujh gjpg;gfk;> nrd;id - 14.

ghh;it E}y;

1. e.tP. n[auhkd;- rpw;wpyf;fpar; nry;tk;> kzpthrfu; gjpg;gfk;> nrd;id.

jhs; - 3 jpuhtpl nkhopfspd; xg;gpyf;fzk;

Programme : B.Lit., Course Code : 18U3TLA03
Semester : III No.of hrs : 5
Course : Allied No.of Credits : 4

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

Nehf;fk;

jpuhtpl nkhopf; FLk;gq;fspd; ,yf;fz mikg;Gfs; vt;thW cs;sd vd;gij khzhf;fu;fSf;F czu;j;Jjy;.

myF - 1

nkhopapd; Njhw;wk; - nkhopfspd; tiffs; - xg;gpay; Kiwfs;

myF - 2

xyp tiffs; - capu; xypfs; - nka;nahypfs; - xyp mir Kiw – xyp mOj;jk; - xyp khw;wk;

myF - 3

mbr;nrhw;fs; - jpuhtpl nkhopfspd; ,ay;G – jdpr;rpwg;Gfs;;>

myF - 4

cUgd;fs; - tiffs; - ngau; - tpid - ,il – cup – Rl;L - tpdh

myF - 5

Ntw;Wikfs; - vz;Zg;ngau;fs; - njhlu; mikg;G

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	nkhop tuyhw;iw mwpar; nra;jy;	8
CO-2	vOj;Jf;fspd; xypKiwia mwpar; nra;jy;	2
CO-3	nrhw;fspd; gphpTfis jpuhtpl nkhop mbg;gilapy; Muha;jy;	8
CO-4	nkhopapd; ghFghLfis czh;j;Jjy;	8
CO-5	Ntw;Wik cUGfis khzth;fis mwpar;nra;jy;	2

ghl E}y;:

1. jpuhtpl nkhopfs; xg;gha;T – Xu; mwpKfk; - [p.[hd;rhKNty;> cyfj;jkpohuha;r;rp epWtd ntspaPL.

ghu;it E}y;fs;:

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

1. jkpo; nkhop tuyhWk; xg;gpyf;fzKk; - ,uh. muq;frhkp – Fle;ij ntspaPL
2. jpuhtpl nkhopfspd; xg;gpyf;fzk; - fhy;Lnty; - fof ntspaPL
3. nkhop E}y; - K.t.- ghup epiyak;> nrd;id
4. nkhopapay; - R.,d;dhrp – nrd;idg; gy;fiyf;fof ntspaPL.

jhs; 1 – ,aw;if kUj;Jtk;;

Programme : B.Lit., Course Code : 18U3TLS01
Semester : III No.of hrs : 2

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

Course : SBEC No.of Credits : 2

Nehf;fk;:

jkpo; ,yf;fpaq;fspy; fhzyhFk; kUj;Jt E}y;fs;> rpj;ju; E}y;fspy; fhzyhFk; kUj;Jt KiwfisAk; %ypif kUj;Jtq;fisAk; khztu;fSf;F czu;j;Jjy;;.

myF - 1

eyKk; kUj;JtKk;> cly; eyk; NgZjypd; ,d;wpaikahik> eilKiw tho;tpaYk; mjd; jhf;fq;fSk;> jw;Nghija kUj;Jt KiwfSk; mjd; jhf;fq;fSk;.

myF - 2

,aw;if kUj;Jtk;> kUj;Jtj;jpd; tiffs;> rpj;j kUj;Jtk;> MAu;Ntjk;> Adhdp> N`hkpNahgjp> ,aw;if NahfKiw kUj;Jtk;

myF - 3

czTk; - kUj;JtKk;> ,yf;fpaq;fspy; ,aw;if kUj;Jtk;> kUe;J (jpUf;Fws;)> rpj;ju; ghly;fs; jUk; KUj;Jt Kiwfs;> md;whlk; gad;gLj;Jk; czTk; nghUl;fSk;> mtw;wpd; kUj;Jt jd;ikAk; fPiu tiffSk; mtw;wpd; gad;fSk;> %ypif kUj;Jtk;.

myF - 4

kUj;Jtg; gapu;fspd; rhFgbAk; mjd; Kf;fpaj;JtKk;> Vw;Wkjpf;Nfw;w %ypifg;gapu;fs;> kutif nfhb tif> %ypifg; gapu;fs;>

myF - 5

%ypifg; gapu;fisj; jhf;Fk; G+r;rpfSk; mtw;iw ePf;Fk; KiwfSk;> Vw;w ghJfhg;G Kiwfs;> %ypifg; gapu;fspy; Njhd;Wk; Neha;fSk; mitfisf; fl;Lg;gLj;Jk; KiwfSk;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	cly;eyk; Fwpj;j tpopg;Gzh;it khzth;fSf;F Vw;gLj;Jjy;	9
CO-2	kUj;Jt tiffis khzth;fis mwpar; nra;jy;	9
CO-3	,yf;fpaj;jpy; kUj;Jtf; Fwpg;Gf;fis khzth;fs; mwpar; nra;jy;	9
CO-4	%ypif jhtuq;fs; gw;wp khzth;fs; mwpar; nra;jy;	9
CO-5	%ypif gaph;fis guhkhpf;Fk; Kiwia khzth;fSf;F fw;Wj; jUjy;	9

ghHit E}y;fs;

1. %ypifg;gapu;fs; rhFgb njhFg;G :- Kidtu; Nfh. ghyfpU\;z %u;j;jp>
   Kidtu; up. upr;ru;L nfd;db>
   Kidtu; jp. ru];tjp>
   Kidtu; R. ,yf;Fkzd;

ntspapl;Nlhu; : Njhl;lf;fiy Muha;r;rp> jkpo;ehL Ntshz;ikg; gy;fiyf;fofk;>

Vw;fhL

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

ehd;fhk; gUtk;
***jhs*; - 11 fhg;gpaq;fs;**

Programme : B.Lit., Course Code : 18U4TL11
Semester : IV No.of hrs : 5
Course : Core **No.of Credits : 4**

Nehf;fk;

ngUq;fhg;gpaq;fisf; fw;W mtw;wpy; nghjpe;jpUf;Fk; fhg;gpaf; $WfisAk;

tho;tpay; newpfisAk; mwpe;J nfhs;sy;.

myF – 1 rpyg;gjpfhuk; - GfhHf;fhz;lk; KOtJk;

myF – 2 kzpNkfiy – 1. ghj;jpuk; ngw;w fhij>

2. Mjpiu gpr;irapl;l fhij

myF – 3 rPtfrpe;jhkzp - tpkiyahH ,yk;gfk;>

myF - 4 fk;guhkhazk; - fhl;rpg; glyk;

(tpy;ypghujk; 1 rUf;fk; - fe;jgUtk;)

myF - 5 Njk;ghtzp - ghiyGFglyk;

rPwhg;Guhzk; - khDf;Fg; gpiz epd;w glyk;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Kjy;fhg;gpakhd rpyg;gjpfhuk; top fhg;gpa cj;jpfis mwpjy;	3
CO-2	ngsj;j rkaj;ijAk;> <jopd; gz;Gfisf; fw;W gadiljy;	4
CO-3	murUf;Fhpa Fzeyd;fs; > kzE}ypd; jd;ikia fw;W czh;e;jdh;	3
CO-4	mDkdpd; gf;jp jpwj;ij fk;guhkhazk; top mwpar; nra;jy;	3
CO-5	gpw kj ,yf;fpaq;fs; %ykhf ,uf;f czh;tpd; gz;ig mwpe;J nfhs;Sjy;	4

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

ghl E}y;fs;:

1. rpyg;gjpfhuk;> eh.K.Ntq;flrhkp ehl;lhu;> ckh gjpg;gfk;> 10> gtsf;fhuj;njU kz;zb> nrd;id
2. kzpNkfiy> c.Nt.rh (c.M)> c.Nt.rhkpehijau; E}y; epiyak;> nrd;id
3. rPtfrpe;jhkzp> c.Nt.rh (c.M)> c.Nt.rhkpehijau; E}y; epiyak;> nrd;id
4. fk;guhkhazk;> it.K.NfhgyfpU\;zkhr;rhupahu;> ckh gjpg;gfk;> 10> gtsf;fhuj;njU kz;zb> nrd;id
5. rPwhg;Guhzk;> nra;Fjk;gpghtyu; (g.M)> `[Pk;KfkJ A#g;> ftpNahfp> ehr;rpFsj;jhu;> cjakhu;j;jhz;lGuk;> jpUth&u;.
6. Njk;ghtzp – tPukhKdpth;

ghu;it E}y;fs;:

1. fhg;gpa ghu;it> 1987> t.Rg.khzpf;fk;> kzpthrfu; gjpg;gfk;> rpjk;guk;.
2. rpyg;gjpfhuk;> kzpNkfiy> fhg;gpa kuG> 1997> Nfh.,yl;Rkzrhkp> mz;zhkiyg;gy;fiyf;fofk;> mz;zhkiyefu;
3. jkpou; gz;ghL> fk;gd; fhtpak;> 1993 v];.itahGupg;gps;is> v];.itahGupg;gps;is epidT kd;wk;> 2> ehyhtJ FWf;F njU> ,uh[h mz;zhkiyGuk;> nrd;id
4. jkpo; ,yf;fpa rupjj;jpy; fhtpa fhyk; jpuhtpl nkhopfspy; Muha;r;rp> v];.itahGupg;gps;is epidT kd;wk;> 2> ehyhtJ FWf;F njU> ,uh[h mz;zhkiyGuk;> nrd;id
5. kzpNkfiy fhg;gpaf; fijAk;> gpw ,iaGf; fijfSk; Xu; xg;gha;T 2001. xa;. nld;dprd;> nkupy; gjpg;gfk;> jpUr;rp.

,yf;fzk; - IV ahg;Gk; mzpAk;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

Programme : B.Lit., Course Code : 18U4TL12
Semester : IV No.of hrs : 6
Course : Core **No.of Credits : 4**

ghl Nehf;fk;:

ahg;gpyf;fzj;ijAk; mzpapyf;fzj;ijAk; mwpTWj;Jjy;

myF – 1

ahg;gUq;fyf;fhupif - vOj;J> mir> rPu;> jis> mb> njhil ghtif)

myF – 2

ahg;gUq;fyf;fhupif - nra;Aspay; -

myF – 3

jz;bayq;fhuk; - jd;ik> ctik. cUtfk; - jPtfk;>

myF – 4

gpd;tUepiy – Kd;dtpyf;F –Ntw;Wik – xl;L – mjprak; - jw;Fwpg;Ngw;wk;> VJ> ,Nyrk;

myF – 5

jz;bayq;fhuk; - epuy;epiw – Rit – rpNyil – tpNrlk; - tpNuhjk;> khWghL> Gfo;epiy> Gfohg;Gfo;r;rp> rq;fPuzk;> ghtpfk;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	ghtiffis fw;W gadile;jdh;	2
CO-2	nra;As; ,aw;Wk; Kiwia fw;W gadile;jdh;	2
CO-3	ctik> cUtfk; > jPtfk; gad;gLj;Jk;; Kiwia mwpe;J nfhz;ldh;	2
CO-4	mzpapd; gad;ghl;bid fw;W gadile;jdh;	2
CO-5	,yf;fpafj;jpw;F ,yf;fzj;jpd; Kf;fpaj;Jtj;ij mwp;e;J nfhz;ldh;	1

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

ghl E}y;fs; :

1. Nrhk ,stuR (c.M)> jz;bayq;fhuk;> epA+ nrQ;Rup Gf; `T];> nrd;id.2.
2. jpUQhdrk;ge;jk; (c.M)> jz;bayq;fhuk;> fjpu; gjpg;gfk;> jpUitahW.
3. jpUQhdrk;ge;jk; (c.M)> ahg;gUq;fyf;fhhpif> fjpu; gjpg;gfk;> jpUitahW.

ghu;itE}y;fs; :

1. lhf;lh; Nrh.eh.fe;jrhkp ahg;gpaypd; Njhw;wKk; tsu;r;rpAk; jkpo;g;gy;fiyf;fofk;> jQ;ir.
2. ,.Re;ju%u;j;jp> jpUf;Fws; mzpeyk;> jkpo;f;Nfhl;lk; gjpg;gfk;> GJr;Nrup.

jkpo;nkhop tuyhW

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

Programme : B.Lit., Course Code : 18U4TL13
Semester : IV No.of hrs : 5
Course : Core No.of Credits : 4

ghl Nehf;fk;:

njhd;ikf; fhyj;jpypUe;J ,f;fhyk; tiu jkpod; xyp> thp tbt khw;wq;fis czHj;Jjy; fhye;NjhWk; jkpo; ,yf;fzf; $Wfs; mile;j khw;wq;fis czHj;Jjy;

myF - 1

nkhop tuyhw;Wr; rhd;Wfs; - njhy;jpuhtplk; - njhy;fhg;gpaj; jkpo; - rq;ffhyj; jkpo; - jkpo;g; gpuhkpf; fy;ntl;Lj;jkpo;

myF - 2

,ilf;fhyj;jkpo; - gy;ytH - NrhoH - ehaf;fH - kuhl;baH fhyj; jkpo;

myF - 3

fy;ntl;Lj;jkpo; - capnuhyp khw;wq;fs; - nka;nahyp khw;wq;fs; - jkpo;f;fpisnkhopfs;

myF - 4

,f;fhyj; jkpo; - ciueilapy; gpwnkhopr; nrhw;fs; - mwptpay; jkpo; - fiyr;nrhy;yhf;fk; - nkhopngaHg;G - thndhyp - njhiyf;fhl;rpj;jkpo;

myF - 5

jkpo; thptbt tuyhW - njhy;fhg;gpaH fhyk; - ,ilf;fhyk; - vOj;Jr;rPHjpUj;jk; - tPukhKdptUk; nghpahUk; - th. nr. Foe;ijrhkp

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jpuhtpl nkhopfspy; jkpo; nkhopad; rpwg;Gf;fis mwpe;J nfhz;ldh;	5
CO-2	,ilf;fhy murh;fspd; tuyhw;NuhL jkpo; nkhopapd; Nkd;ikia mwpe;J nfhz;ldh;	1
CO-3	fhyj;jpw;F Vw;whw;Nghy; nkhop khWgl;l tpjj;ij mwpe;J nfhz;ldh;	5

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO-4	ciueilapy; gpw nkhopr;nrhw;fis fz;lwpa khzth;fSf;F nkhopngah;g;G gad;gl;lJ	5
CO-5	jkpopd; vOj;J rPh;jpUj;jk; gw;wp mwpe;J nfhz;ldh;	1

ghlE}y;:

1. lhf;lu; R.rf;jpNty;> jkpo;nkhop tuyhW> kzpthrfu; gjpg;gfk;> nrd;id.

ghHit E}y;fs;

1. njh.ngh.kP - jkpo;nkhop tuyhW> rHNthja ,yf;fpag; gz;iz> kJiu> 1977
2. K. tujuhrd; - nkhop tuyhW> ghhp epiyak;> nrd;id
3. R. rf;jpNty; - jkpo; nkhop tuyhW

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jhs;: 14 kf;fs; jfty; njhlu;gpay;

Programme : II B.Lit., **Course Code : 18U4TL14**
Semester : IV **No.of hrs : 5**
Course : CORE **No.of Credits : 4**

Nehf;fk; : ,jo;fspd; Nehf;Fk; Nghf;Fk; Fwpj;J czh;j;Jjy;.

Nehf;fk; : thndhyp – jpiug;glk; - njhiyf;fhl;rp r%fj;jpw;F Mw;Wk; gzpfis tpsf;Fjy;.

Nehf;fk; : fzpdp - ,izak; - ,-nkapy; gad;ghLfis czh;j;Jjy;.

Nehf;fk; : nra;jp Nrfhpf;Fk; Kiwiaf; fw;Wj;jUjy;.

Nehf;fk; : ,jopay; rl;lq;fs;> nra;jp epWtdq;fspd; Nritia tpsf;Fjy;.

myF – 1 ,jopay; - tiuaiw – tuyhW – jfty; njhlh;Gr; rhjdq;fs; - ,jopaypd; gpw Jiwfs;.

myF – 2 thndhyp – jpiug;glk; - njhiyf;fhl;rp; nra;jp %yq;fs; - nra;jp Nrfhpj;jy; - nkhopeil.

myF – 3 fzpdp - ,izak; - ,-nkapy; (kpd;dQ;ry;)

myF – 4 nra;jpahshpd; jFjpfSk; flikfSk; - ,jo;fspd; tiffs; - ,jo;fspd; mikg;GKiw – jiyaq;fk; - tpsk;guq;fs; - glq;fs.;

myF – 5 ,jopay; rl;lq;fs; - jzpf;if Kiwfs; - nra;jp epWtdq;fs; - ,jo; jahhpj;jy;.

CO No.	Upon completion of this course, students will be able to	PSOs addressed

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO-1	,jo;fspd; epiy Fwpj;J khzth;fs; mwpar; nra;jy;	10
CO-2	thndhyp – jpiug;glk; - njhiyf;fhl;rp Nritiag; Ghpe;J nfhs;Sjy;	10
CO-3	fzpdp - ,izak; - ,-nkapy; gad;ghL Fwpj;Jj; njhpe;J nfhz;ldh;	10
CO-4	nra;jp Nrfhpf;Fk; Kiwiaf; fw;Wg;gadile;jdh;.	10
CO-5	,jopay; rl;lq;fs;> nra;jp epWtdq;fspd; Nritiag; Ghpe;J nfhz;ldh;.	10

ghlE}y;

1. fp.,uhrh> kf;fs; jfty; njhlh;gpay;. ghh;j;jpgd; gjpg;gfk;> V-12> vy;.I.rp fhydp> jpUr;rp – 620 021

ghh;it E}y;fs;

1. jq;fkzpad; - gj;jphpf;ifapay;>gp.10 ehd;fhk; FWflF> Nguhrphpah; FbapUg;G khdrf];Nfhj;jphp> ikR+h; - 7
2. nt.fpUl;bzrhkp> jfty; njhlh;gpay; kzpthrfh; gjpg;gfk;> 31 rpq;fh;njU> ghhpKid> nrd;id -18
3. k.gh.FUrhkp> ,jopay; fiy. 117 rd;djp;j; njU> jpUr;nre;J}h;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

Ngr;Rf;fiy

Programme : II B.Lit., Course Code : 18U4TLA04
Semester : IV No.of hrs : 5
Course : Allied No.of Credits : 3

Nehf;fk; : Ngr;Rf;fiy vd;gJ goe;jkpo; ,yf;fpak; vd;gij czh;j;Jjy;.

Nehf;fk; : Nkilg;Ngr;R Kiwfs; Fwpj;J tpsf;Fjy;.

Nehf;fk; : Ngr;rhshpd; jFjpfs; Fwpj;J tpsf;Fjy;.

Nehf;fk; : nrhw;nghopthw;Wk; cj;jpfis tpsf;Fjy;.

Nehf;fk; : nrhw;nghoptpw;fhd gz;Gfs;> gy;Jiw mwpit tsh;j;Jf;nfhs;s Cf;fg;gLj;jy;.

myF – **1**

Ngr;R – xU jiyrpwe;j fiy – goe;jkpo; ,yf;fpaq;fspy; Ngr;Rf;fiy gw;wpa gjpTfs;

myF – **2** Nkilg;Ngr;R tiffs; - Foe;ijfSf;fhd Ngr;R> fy;Y}hp tpohf;fspy; nrhw;nghopT. ,yf;fpar; nrhw;nghopT> rkar; nrhw;nghopT. tho;j;Jiufs;. fUj;juq;fr; nrhw;nghopTfs;> gl;bkd;wq;fs;> jiyikAiu> tuNtw;Giu> ed;wpAiu Nghd;wd.

myF – **3** Ngr;rhshpd; jFjpfs; - mr;rkpd;ik. Fuy; tsk;. Njhw;wg;nghypT> kd xUikg;ghL> cr;rhpg;G> cly;nkhop> nkhop mwpT> Mo;e;j ,yf;fpag; gapw;rp> nghJ mwpT> cw;W Nehf;fy;> jd;dk;gpf;if> cz;ikNgRjy;> epidthw;wy; Nghd;wd.

myF – **4**

nrhw;nghoptpd; njhlf;fk; - mitapdiu tpspj;jy; Kiwfs; - nrhw;nghopT njhlf;fj;jpw;fhd cj;jpfs;, tiffs; - nrhw;nghopT Kbf;Fk; cj;jpfs;> tiffs;

myF – **5**

nrhw;nghoptpw;fhd gz;Gfs; - fUj;Jj; njhlh;G> nrhy;ypy; njspT> vspik> mwpQh;fspd; fUj;Jf;fs; Nghd;w Nkw;Nfhs;fis vLj;jhSk; jpwd; - nrhw;nghoptpw;Fhpa nkhopeil. ,yf;fpaeil> Ngr;Reil> eifr;Rit Nghd;wd.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Ngr;Rf;fiyapd; El;gq;fisj; njhpe;J nfhz;ldh;.	1
CO-2	Ngr;rhw;wiy tsh;j;Jf;nfhz;ldh;	10
CO-3	Ngr;rhshpd; jFjpfis Ghpe;J nfhz;ldh;	10
CO-4	nrhw;nghopthw;Wk; cj;jpfs; tiffis njhpe;J nfhz;ldh;.	1
CO-5	nrhw;nghopthw;Wk; gz;Geyd;fis tsh;j;Jf; nfhz;ldh;.	10

ghlE}y;

1. lhf;lh; k.jpUkiy> Ngr;Rf;fiy> kPdhl;rp Gj;jf epiyak;. kAuh tshfk;> 48> jhdg;g KjypnjU. kJiu – 625 001> 2009

ghh;itE}y;

1. NkilG;Ngr;Rf;fiy – Nly; fhh;dfp. fz;zjhrd; gjpg;gfk;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

Ml;rpg;gzpj; jkpo;

Programme : II B.Lit., Course Code : 18U4TLS02

Semester : IV No.of hrs : 5

Course : Allied No.of Credits : 3

Nehf;fk; : jkpopy; Gfo; ngw;w E}y;> E}yhrphpah;fis mwptpj;jy;.

Nehf;fk; : gpioapy;yhky; vOjf; fw;Wf;nfhLj;jy;.

Nehf;fk; : nrhw;fSf;fhd xypNtWghLfis czh;j;jy;.

Nehf;fk; : mfu thpirg;gLj;jy;> nrhw;fis xOq;FgLj;jy; Kiwfis tpsf;Fjy;.

Nehf;fk; : jd;tpid> gpwtpid> nra;tpid> thf;fpak; mikj;jy;.

myF – 1

nghUj;Jjy; - nghUj;jkhd nghUisj; njhpT nra;jy; (ii) Gfo; ngw;w E}y; E}yhrphpah; - njhlUk; njhlh;;Gk; mwpjy; (i) njhluhy; Fwpf;fg;ngWk; rhd;Nwhh; (ii) milnkhopahy; Fwpf;fg;ngWk; E}y;- gphpj;njOJjy; – vjph;nrhy;iy vLj;njOJjy;- nghUj;jkhd nrhy;iyf; fz;lwpjy;

myF – 2

gpioj; jpUj;jk; (i) re;jpg;gpioia ePf;Fjy; (ii) xUik – gd;ik – gpiofis ePf;Fjy; kuGg; gpiofs; - tOcr; nrhw;fis ePf;Fjy; - gpwnkhopr; nrhw;fis fz;lwpe;J ePf;Fjy; - Mq;fpyr; nrhy;Yf;F Neuhd jkpo;r; nrhy;iy mwpjy;

myF – 3

xyp NtWghlwpe;J rhpahd nghUisawpjy; - xnuOj;JxUnkhop chpa nghUisf; fz;lwpjy; - Nth;r;nrhy;iyj; Njh;T nra;jy; - Nth;r;nrhy;iyf; nfhLj;J - tpidKw;W> tpidnar;rk;> tpidahyizAk; ngah;> njhopw;ngaiu cUthf;Fjy;

myF – 4

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

ngah;- njhopw; ngah; cUthf;fy; - mfu thpirg;gb nrhw;fis rPh; nra;jy;- nrhw;fis xOq;FgLj;jp nrhw;nwhluhf;Fjy; - ngah;r;nrhy;ypd; tifawpjy; - ,yf;fzf; Fwpg;gwpjy; - tpilf;Nfw;w tpdhitj; Njh;njLj;jy;

myF – 5

vt;tif thf;fpak; vdf; fz;nlOjy; - jd;tpid> gpwtpid> nra;tpid> nrag;ghl;Ltpid thf;fpaq;fisf; fz;nlOJjy; - ctikahy; tpsf;fg;ngWk; nghUj;jkhd nghUisj; Njh;e;njOJjy;- vJif> Nkhid> ,iaG ,tw;Ws; VNjDk; xd;iwj; Njh;e;njLj;J vOJjy;.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jkpopy; Gfo;g; ngw;w E}y; E}yhrphpah;fis mwpe;J nfhz;ldh;.	1
CO-2	gpioapy;yhky; vOjf; fw;Wf;nfhz;ldh;.	2
CO-3	nrhw;fSf;fhd xypNtWghLfis Ghpe;J nfhz;ldh;	5
CO-4	mfu thpirg;gLj;jy;> nrhw;fis xOq;FgLj;jy; Kiwfis njhpe;J nfhz;ldh;	2
CO-5	jd;tpid> gpwtpid> nra;tpid> fw;Wf;nfhz;ldh;.	2

ghh;it E}y;fs;

1. Njtpuh> jkpo; ,yf;fpa fiyf;fsQ;rpak;> ee;jpdp gjpg;gfk;> 36-16 Kjy; njU> nty;fk; fhyzp> mz;zhefh;> nrd;id.
2. rp.ghyRg;gukzpad;> jkpo; ,yf;fpa tuyhW
3. vk;. Mh;. milf;fyr;rhkp> jkpo; ,yf;fpa tuyhW
4. K.mUzhryk;> jkpo; ,yf;fpa tuyhW (E}w;whz;L mbg;gilapy;)
5. lhf;lh; jkpoz;zy;> Gjpa Nehf;fpy; jkpo; ,yf;fpa tuyhW
6. fh.Nfh.Ntq;fluhkd;> ,yf;fz topfhl;b> fdpnkhop gjpg;gfk;> NtY}h;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

rq;f ,yf;fpak; (mfk;)

Programme : B.Lit., Course Code : 15U5TL15
Semester : V No.of hrs : 5
Course : Core No.of Credits : 4

Nehf;fk; : jiytpapd; gz;G eyd;fis mwpjy;.

Nehf;fk; : jiytdpd; Fzq;fisg; gw;wp mwpe;J nfhs;Sjy;.

Nehf;fk; : Njhopahdts; ey;yit jPait $Wtij mwpjy;.

Nehf;fk; : rq;ffhy ghuk;ghpa tpisahl;Lfis mwpjy;.

Nehf;fk; : kioapd; fhuzkhf epfo;Tfs; eilngwhjij mwpjy;.

myF – 1 ew;wpiz

FwpQ;rp – 5>6>8>13 (4 ghly;fs;)

ghiy – 2>3>7>9>10 (5 ghly;fs;)

nea;jy; - 4>11>15>27 (4 ghly;fs;)

kUjk; - 20> 30> 35> 38 (4 ghly;fs;)

Ky;iy – 21> 42> 59 (3 ghly;fs;)

myF – 2 FWe;njhif

Xuk;Nghfpahu;- 10> 70> 122> 127> 384 (5 ghly;fs;)

ef;fPudhu; - 78> 105> 143> 161> 266 (5 ghly;fs;)

Iq;FWE}W – jha;f;Fiuj;j gj;J> nrytOq;Ftpj;j gj;J

myF – 3 mfehD}W

fspw;Wahid epiu – 1> 2> 3> 4> 5 (5 ghly;fs;);;

kzpkpilg;gtsk; - (201> 202> 203> 204> 205 (5 ghly;fs;)

epj;jpyf;Nfhit – 301> 302> 303> 304> 305 (5 ghly;fs;)

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

myF-4 fypj;njhif

Ky;iyf;fyp – VW jOty; - 101> 102> 103> 104> 105 (5 ghly;fs;)

kUjf;fyp – fhkf;fpoj;jp $w;W – 68> 69> 71> 72 (4 ghly;fs;)

FwpQ;rpf;fyp – Njhop $w;W – 37> 38> 39> 40> 41 (5 ghly;fs;)

myF – 5 neLey;thil KOtJk;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jkpohpd; ,y;yw tho;tpaiy mwpe;J nfhz;ldH	3
CO-2	mwj;njhL epw;wiy fw;W czHe;jdH.	3
CO-3	jiytpapd; xOf;f epiyia Nkk;glr; nra;tij mwpe;J nfhz;ldH	1
CO-4	rq;ffhy kf;fspd; czTKiwfs;>gof;ftof;fq;fs;> ek;gpf;fiffis mwpe;J nfhz;ldH	3
CO-5	kdpj> tpyq;Ffs; tUj;jepiyiaAk; fhyr;R+o;epiyiaAk; mwpe;J nfhz;ldH.	3

ghl E}y;fs;

1. F.nt.ghyRg;ukzpad; (c.M) ew;wpiz. epA+ nrQ;Rup Gf; `T]; (gp) ypl;.> 41-gp> rpl;Nfh ,z;l];bupay; v];Nll;. mk;gj;J}u;> nrd;id – 600 098.
2. Kidtu; jl;rpzh%u;j;jp (c.M)> Iq;FWE}W> epA+ nrQ;Rup Gf; `T]; (gp) ypl;.> 41-gp> rpl;Nfh ,z;l];bupay; v];Nll;. mk;gj;J}u;> nrd;id – 600 098.
3. Kidtu; ,uh.nraghy; (c.M)> mfehD}W> epA+ nrQ;Rup Gf; `T]; (gp) ypl;.> 41-gp> rpl;Nfh ,z;l];bupay; v];Nll;. mk;gj;J}u;> nrd;id – 600 098.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

njhy;fhg;gpak; vOj;jjpfhuk

Programme : B.Lit., Course Code : 15U5TL16
Semester : V No.of hrs : 5
Course : Core No.of Credits : 4

Nehf;fk;: vOj;Jf;fspd; tiffis mwpjy;.

Nehf;fk;: vOj;Jf;fs; gpwf;Fk; Kiwia mwpjy;.

Nehf;fk;: vOj;Jf;fs; GzUk; tifia mwpjy;.

Nehf;fk;: capH> nka;naOj;Jf;fs; kaq;Fk; Kiwfis mwpjy;.

Nehf;fk;: vz;Zg;gngahpd; tifis mwpjy;.

myF: 1 E}d; kuG> nkhop kuG> gpwg;gpay;

myF: 2 Gzupay;> njhif kuG> cUgpay;.

myF: 3 capu; kaq;fpay;>

myF: 4 Gs;sp kaq;fpay;

myF: 5 Fw;wpaYfug; Gzhpay;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Fwpy; neby; xw;W ,tw;wpd; ghFghl;il mwpe;J nfhz;ldH	2
CO-2	vOj;Jf;fs; gpwf;Fk; Kiwia mwpe;J nfhz;ldH.	1
CO-3	vOj;Jf;fs; vt;thnwy;yhk; GzUfpd;wdH vd;gij mwpjy;.	2

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO-4	vz;fs; GzUk; Kiwia mwpe;J nfhz;ldH.	2
CO-5	vOj;Jf;fs; vt;thnwy;yhk; kaf;fk; ngWfpd;wd vd;gij mwpe;J nfhz;ldH.	2

ghlE}y;

1. njhy;fhg;gpak; vOj;jjpfhuk;, Muha;r;rp fhz;;bifAiu njhFjp-3, 1989 ghtNyW rh.ghyRe;juk;, jhkiu ntspaPl;lfk;, jQ;ir

2. njhy;fhg;gpak; - ,sk;g+uzh; ciu gjp. Kidth; F. Re;ju%h;j;jp mz;zhkiyg; gy;fiyf;fof ntspaPL> jpUg;gde;jhs; kl epjp ntspaPL. 1996

ghh;it E}y;fs;:

1. njhy;fhg;gpa vOj;jjpfhu Muha;r;rp Nt. Ntq;fluhRY nul;bah; nrd;idg; gy;fiyf;fofk; 1944.
2. ,yf;fzr; rpe;jid 1998 m. rPdpthrd;> J}. NrJghz;bad; (njhFg;ghrpupah;fs;) ,yf;fzj;Jiw> jkpopaw;Gyk;> kJiuf; fhkuhrh; gy;fiyf;fofk;> kJiu.
3. vOj;jpay;> 1975> R+. ,d;dhrp> jkpourd; gjpg;gfk;> ghisaq;Nfhl;il.
4. vOj;jpyf;fzf; Nfhl;ghLfs;> 1980> nr.it.fz;Kfk;> midj;jpe;jpa jkpo; nkhopapay; fofk;> mz;zhkiy efu;> rpjk;guk;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

njhy;fhg;gpak; nrhy;yjpfhuk;

Programme : B.Lit., Course Code : 15U5TL17
Semester : V No.of hrs : 5
Course : Core No.of Credits : 4

Nehf;fk; : jpiz> ghy;gFg;G> %tplk; ,tw;iw mwpjy;.
Nehf;fk; : nrhw;fs; NgRk; Kiwfis njspthf mwpjy;.
Nehf;fk; : nrhw;fs; nghUs; jUk; KiwfisAk; Kf;fhyj;ijAk; mwpjy;.
Nehf;fk; : nrhy;ypd; ,ilr;nrhw;fis mwpjy;
Nehf;fk; : mwpag;glhjr; nrhw;fis nghUs; mwpjy;.

myF – **1** fpstpahf;fk;> Ntw;Wikapay;

myF – **2** Ntw;Wik kaq;fpay;> tpspkuG

myF – **3** ngahpay;> tpidapay;

myF – **4** ,ilapay;> caphpay;

myF – **5** vr;rtpay;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	kdpjDf;Fk; tpyq;FfSf;Fk; cs;s jpizg;ghy;fis mwpe;J nfhz;ldH	3
CO-2	njhlHfs; ifahYk; Kiwfis fw;W gadile;jdH	2

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO-3	nrhw;fis Kiwg;gLj;jp nghUs; gphpTfisAk; Kf;fhyj;ijAk; mwpe;J nfhz;ldH	2
CO-4	,ilr;nrhw;fspd; nghUs;fisAk; mtw;wpd; tifg;ghl;ilAk; mwpe;J nfhz;ldh;	2
CO-5	mirepiyfspd; nghUs;fis fw;W gadile;jdH.	1

ghlE}y;:

1. njhy;fhg;gpak; nrhy;yjpfhuk; (,sk;G+uzh; ciu)> jpUney;Ntyp njd;dpe;jpa irt rpj;jhe;j E}w;gjpg;Gf;fok; ypl;. nrd;id -18

ghu;it E}y;fs;:

1. lhf;lu; nr.it.rz;Kfk; - nrhy;ypyf;fzf; Nfhl;ghLfs; - njhFjp – 3 midj;jpe;jpa jkpo;nkhop fofk; > mz;zhkiy efu;> rpjk;guk;.
2. muq;fuhrd;> jkpopy; Ntw;Wikfs;> ghyKUfd; gjpg;gfk;> nea;Ntyp

.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

xg;gpyf;fpak;

Programme : B.Lit., Course Code : 15U5TL18
Semester : V No.of hrs : 5
Course : Core No.of Credits : 4

Nehf;fk; : xg;gPl;bd; gz;G> jd;ik kw;Wk; rpwg;igAk; mwpjy

Nehf;fk; : ,yf;fpa tsHr;rpia xg;gPL nra;a mwpjy;

Nehf;fk; : gz;ila ,yf;fz ,yf;fpaf; nfhs;fis mwpjy;.

Nehf;fk; : jpUf;FwNshL gpwehl;L E}y;fis xg;gPl;L mwpjy;.

Nehf;fk; : xg;gpaypd; Nehf;fk; gw;wp mwpjy;

myF – 1

xg;gpLk; Xg;gpyf;fpak; - xg;gpyf;fpak; : tiutpyf;fzk; - xg;gpyf;fpaj;jpd; gz;Gk; gaDk; xg;gpyf;fpaj;jpd; Njhw;wKk; tsu;r;rpAk>; - jkpopy; xg;gpyf;fpa tsh;r;rp

myF – 2

,yf;fpa tiffs; - ,yf;fpa tifg;ghl;L Kiwfs; - mwptpay; Nehf;fpy; ,yf;fpa tif tsh;r;rp – guzp ,yf;fpa tsh;r;rp

myF – 3

njhy;fhg;gpaKk; tlnkhop ,yf;fpaf; nfhs;iffSk; - nka;g;ghLk; ,urf;Nfhl;ghLk; - jkpo; fpNuf;f tPuepiyf; fhyg;ghly;fs;

myF – 4

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

jpUf;FwSk; gpwnkhop ,yf;fpaq;fSk; - jpUts;StUk; `PrpaLk; - jpUts;StUk; fd;G+rpa]Pk; - jpUts;StUk; gUj;U`hpAk; - cyf muq;fpy; jpUf;Fws;

myF – 5

xg;gpay; Nehf;F – fk;gDk; thy;kPfpAk; - ghujpAk; tpl;kDk; - ,sq;NfhTk; Nrf;];gpaUk;; nfhz;ldH.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	xg;gpyf;fpaj;jpd; Njhw;wk; tsu;r;rpia fw;Wg; gadile;jdH	5
CO-2	,yf;fpa tiffis mwptpay; Nehf;fpy; fz;L gadile;jdH.	8
CO-3	gz;ila jkpohpd; tho;Tld; $ba tPuj;ij fw;W gadile;jdH	1
CO-4	cyf muq;fpy; jpUf;Fws; ngw;Ws;s ,lj;ij> xg;gPl;L E}y;fs; top fw;W czHe;jdH	5
CO-5	E}yhrphpaHfSf;fpilapyhd xw;Wik Ntw;Wikia xg;gPl;bd; %yk; mwpe;J nfhz;ldh;	5

ghl E}y;;:

1. ,uhrh.fp> xg;gpyf;fpak;> epA+ nrQ;Rhp Gf;`T];(gp) ypl; mk;gj;J}h; nrd;id -98 Nghd; : 044 – 26251968> 26241288

ghh;itE}y;fs;

1. jkpoz;zy;> xg;gpyf;fpa mwpKfk;> kPdhl;rp Gj;jf epiyak;> kJiu.
2. lhf;lu; [p. [hd;rhk;Nty;> ,yf;fpa xg;gha;Tf; fsq;fs;> Mrpatpay; epWtdk;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

ehl;Lg;Gwtpay

Programme : B.Lit., Course Code : 15U5TL19
Semester : V No.of hrs : 5
Course : Core No.of Credits : 4

Nehf;fk; : ehl;Lg;Gwr; rlq;Ffs; ek;gpf;iffs; Fwpj;j tpopg;Gzh;T Vw;gLj;jy;.

Nehf;fk; : ehl;Lg;Gwf; fijfs;> tpLfijfs;> gonkhopfis mwpanra;jy;.

Nehf;fk; : fiyfs; Njitia czh;j;Jjy;.

Nehf;fk; : rlq;Ffs; - gof;f tof;fq;fs; - ek;gpf;iffs; Fwpj;j tpsf;fkspj;jy;.

Nehf;fk; : rpWnja;t> ngUnja;t NtWghLfis vLj;Jiuj;jy;

myF - 1

ehl;Lg;Gwtpay; - tpsf;fk; - ehl;Lg;Gwtpay; tuyhW> ehl;Lg;Gw ,yf;fpa tiffs; - fiyfs; - rlq;Ffs; - ek;gpf;iffs;

myF - 2

ehl;Lg;Gw ,yf;fpaq;fs; - ghly;fs; - tiffs; - fijfs; - fijg;ghly;fs; - tpLfijfs; - gonkhopfs**;.**

myF - 3

epfo;j;Jf; fiyfSk; nghUl;fiyfSk; - epfo;j;Jf; fiyfs; - njUf;$j;J – cLf;fbg; ghl;L – ghitf;$j;J – fufk; - nghk;kyhl;lk; - xapyhl;lk;

myF - 4

gpwg;G Kjy; ,wg;G tiuapyhd rlq;Ffs; - gof;f tof;fq;fs; - ek;gpf;iffs;

- Neu;j;jpf;fld;fs;.;

myF - 5

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

ehl;Lg;Gwj; nja;tq;fs; - topghL – gz;biffs; - tpohf;fs; - Cu;g;nghJ epfo;Tfs; - tPl;Lj; nja;tq;fs; - ehl;Lg;Gwtpay; Ma;Tfs; - Nrfupg;Gg; gzpfs; - tsu;r;rp epiy – Nfhl;ghLfs;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	ehl;Lg;Gwr; rlq;Ffs; ek;gpf;iffs; gw;wp njhpe;J nfhz;ldh;	3
CO-2	ehl;Lg;Gwf; fijfs;> tpLfijfs;> gonkhopfisf; Nfl;Lg; gad;ile;jdh;.	3
CO-3	fiyfspd; Njitiag; Ghpe;J nfhz;ldh;	1
CO-4	rlq;Ffs; - gof;f tof;fq;fs; - ek;gpf;iffis mwpe;J gadile;jdh;	3
CO-5	rpWnja;t> ngUnja;t topghLfis njhpe;J nfhz;ldh;.	4

ghl E}y;:

rf;jpNty; R – ehl;Lg;Gwtpay; Ma;Tfs; > kzpthrfu; gjpg;gfk;> nrd;id

ghu;it E}y;fs;:

1. Y}u;J> Nj – ehl;lhu; tof;fhw;wpay;> kzpthrfu; gjpg;gfk;> nrd;id
   rz;KfRe;juk; - ehl;Lg;Gwtpay;> fht;ah gjpg;gfk;> nrd;id
2. ,uhkehjd;> MW – ehl;Lg;Gwtpay; Ma;T Kiwfs; > jkpo;g;gy;fiyf;fofk;> jQ;rhT+u;
3. ngUkhs; V.vd;. – ehl;Lg;Gwf; fiyfs;> cyfj;jkpouha;r;rp epWtdk; nrd;id

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

Nfhapw;fiyfs;

Programme : B.Lit., Course Code : 15U5TL20
Semester : V No.of hrs : 5
Course : Core No.of Credits : 4

Nehf;fk; : jkpoh;fspd; fiyeaj;ij czh;j;Jjy;.
Nehf;fk; : gy;ytu;fhy Filtiuf; Nfhapy;fspd; fiyeaj;ij czh;j;Jjy;.
Nehf;fk; : *%Nte;jh;fspd***;** Nfhapy;fspd; fiyeaj;ij czh;j;Jjy;.
Nehf;fk; : ehaf;fu;fhy Nfhapy; tuyhw;iw czh;j;Jjy;.
Nehf;fk; : ehl;Lg;Gwf; Nfhapy;fspd; mikg;G Kiwfis czh;j;Jjy;.

myF - 1

Nfhapw;fiyapd; Njhw;wKk; tsh;r;rpAk; - kutopghL – rq;ffhyf; Nfhapy;fSk; ,iwAUtq;fSk; - rq;ffhyf; fl;lf;fiy – rq;ffhy Xtpaf;fiy

myF – 2

gy;yth; Nfhapy;fs; - kNfe;jputh;kd; Filtiuf; Nfhapy;fs; - kz;lfg;gl;L ,yr;rpjd; Filtiu – gy;yhtuk; - gQ;rghz;lt Filtiu – khky;yd; Filtiu – NfhNdhp kz;lgk; - tuf kz;lgk; - guNkRth; Mjpuhf kz;lgk; - ,uh[rpk;kd; Gypf; Fif - xw;iwf;fy; Nfhapy;fs; - fl;Lkhdf; Nfhapy;fs; - fhQ;rp ifyhrehjh; Nfhapy;fs;

myF -3

gpw;fhy ghz;bah; Nfhapy;fs; - gps;isahh;g;gl;b – jpUg;guq;Fd;wk; - rpj;jd;dthry; - FLkpahd;kiy – nfhLk;ghSh; %th;Nfhapy;fs; - fOFkiy Nrhoh;fhyf; Nfhapy;fs; - jQ;ir ngUTilahh; Nfhapy; - fq;ifnfhz;l NrhoGuk; Nfhapy; - jhuhRuk; IuhtNjRtuh; Nfhapy; - jphpGtdk; fk;gN`Rtuh; Nfhapy;

myF – 4

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

tp[aefu ehaf;fh;fhyf; Nfhapy;fs; - gzpfs; - kPdhl;rp Re;jNuRtuh; Nfhapy; - jhbf;nfhk;G nrse;juuh[ngUkhs; Nfhapy; - NfhGuq;fs; - kz;lgq;fs; - jpUr;Rw;Wfs; - Nfhapw; fiyfs; - jpUtpohf;fs;

myF – 5

ehl;Lg;Gwf; Nfhapy;fs; mikg;Gk; tiffSk; - ehl;lhh; nja;tq;fSk; tiffSk; Fynja;t topghL - Nfhapy; jpUtpohf;fs;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jkpoh;fspd; fiyeaj;ijf; fw;Wj;njspe;jdh;	1
CO-2	Filtiuf; Nfhapy;fspd; fiyeaj;ij fw;Wg;gadile;jdh;.	4
CO-3	*%Nte;jh;fspd***;** Nfhapy; fiyeaj;ijf; fw;Wj;njspe;jdh;	3
CO-4	ehaf;fu;fhy Nfhapy; tuyhw;iw mwpe;J nfhz;ldu;	6
CO-5	ehl;lhu; Nfhapy;fspd; mikg;G kw;Wk; fiyeaj;ijf; fw;Wj;njspe;jdh;.	4

ghl E}y;fs;

1. ,uh. ehfrhkp> jkpoff; Nfhapw;fiyfs; - jkpo;ehLmuR njhy;nghUs; Ma;Tj; Jiw ntspaPL> nrd;id. 1976
2. mk;ig kzptz;zd>; jkpof Nfhapw;fiy tuyhW> n[. n[. gjpg;gfk; kJiu. 2005

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

rq;f ,yf;fpak; Gwk

Semester : VI **No.of hrs : 5**
Course : Core **No.of Credits : 4**

Nehf;fk; : kd;du; Gytu; Nghu;ghly;fis gw;wp tpsf;Fjy;.
Nehf;fk; : Nru tuyhw;iw czu;j;Jk; gjpw;Wg;gj;jpd; ghly;fis mwpjy;.
Nehf;fk; : rq;ffhy ,WjpE}yhd gupghlypd; top ,iwtopg;ghl;il czu;j;jy;.
Nehf;fk; : ghzh; tho;tpay;> murh;fspd; nfhil czh;j;jy;.
Nehf;fk; : ahidg; Nghu; rpwg;Gfis mwpjy;.

myF – 1 GwehD}W

jiyahyq;fhdj;Jr; nrUntd;w ghz;bad; neLQ;nropad; -
23>24>25>26>76>78>79 (7 - ghly;fs;)
Nrhod; FsKw;wj;Jj; JQ;rpa fps;sp tstd; -
34> 35> 36> 37 (4 - ghly;fs;)
ngUQ;rpj;jpudhu; - 158> 159> 160> 161 (4 - ghly;fs;);
nghd;Kbahu; - 299> 310> 312 (3 - ghly;fs;)>
NfhT+u;fpohu; - 308> 373> 382 (3 - ghly;fs;)

myF – 2 gjpw;Wg;gj;J – Mwhk; gj;J. Vohk; gj;J

myF – 3 gupghly; -

jpUkhy; (ehd;fhk; ghly; - 73 tupfs;)
nrt;Nts; (Ie;jhk; ghly; - 81 tupfs;)
itia (,Ugjhk; ghly; - 105 tupfs;)

myF – 4 rpWghzhw;Wg;gil – KOtJk;

myF – 5 fstopehw;gJ - KOtJk;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jkpohpd; tPuk;> nfhil>murpay; mwpe;J nfhz;ldh;	3
CO-2	jkpohpd; tPuk;> nfhil>murpay; mwpe;J nfhz;ldh;.	3
CO-3	jkpohpd; tPuk;> nfhil>murpay; mwpe;J nfhz;ldh;	3
CO-4	ghzh; tho;tpay;> murh;fspd; nfhil njhpe;J nfhz;ldh;.	6
CO-5	jkpohpd; tPuk;> nfhil>murpay; mwpe;J nfhz;ldh;.	3

ghlE}y;fs;

1. xsit Jiurhkpg;gps;is (c.M). GwehD}W> jpUney;Ntyp njd;dpe;jpa ira rpj;jhe;j E}w;gjpg;Gf; fofk; (ypl;) nrd;id 18
2. Kidtu; M.Myp]; (c.M)> gjpw;Wg;gj;J> epA+ nrQ;Rup Gf; `AT]; (gp) ypl;.> 41-gp> rpl;Nfh ,z;l];bupay; v];Nll;. mk;gj;J}u;> nrd;id – 600 098.
3. ngh.Nt. NrhkRe;judhu;> gupghly;. fof ntspaPL. nrd;id
4. ngh.Nt. NrhkRe;judhu;> gj;Jg;ghl;L> fof ntspaPL> Mo;thu; Ngl;il. nrd;id

ghHit E}y;fs;

1. Kidtu; Nrh.eh.fe;jrhkp – Gwj;jpiz tho;tpay; - jkpo;g;gy;fiyf;fofk; - jQ;rhT+u;
2. Kidtu; fh.g.mwthzd; - mw;iwehs; fhjYk; tPuKk;> nka;ag;gd; jkpoha;tfk;. rpjk;guk;.
3. Kidtu; F.nt.ghyRg;gpukzpad; - rq;f ,yf;fpaj;jpy; Gwg;nghUs; - nka;ag;gd; jkpoha;tfk;. rpjk;guk;.
4. ,sq;Fkudhu;> jkpou; tho;tpay;> mkpo;jk; gjpg;gfk;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

njhy;fhg;gpak; nghUsjpfhuk

Programme : B.Lit., Course Code : 15U6TL22

Semester : VI No.of hrs : 5

Course : Core No.of Credits : 4

Nehf;fk; : jkpohpd; mftho;f;ifia tpsf;Fjy;

Nehf;fk; : jkpohpd; Gwtho;f;ifia tpsf;Fjy;

Nehf;fk; : jkpohpd; fhjy; tho;f;ifia tpsf;Fjy;

Nehf;fk; : jkpohpd; fw;gpay; tho;f;ifia tpsf;Fjy;

Nehf;fk; : jkpohpd; ,y;yw tho;f;ifia tpsf;Fjy;

myF – 1 mfj;jpizapay;>

myF – 2 Gwj;jpizapay;

myF – 3 fstpay;

myF – 4 fw;gpay;

myF – 5 nghUspay;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jkpohpd; mftho;f;ifia gapd;W gadile;jdh;.	3
CO-2	jkpohpd; Gwtho;f;ifia gapd;W gadile;jdh;.	3
CO-3	jkpohpd; fhjy; tho;f;ifia gapd;W gadile;jdh;.	1

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO-4	jkpohpd; fw;gpay; tho;f;ifia gapd;W gadile;jdh;.	2
CO-5	jkpohpd; ,y;yw tho;f;ifia gapd;W gadile;jdh;	2

ghlE}y;:

1. njhy;fhg;gpak;> nghUsjpfhuk; (,sk;G+uzh; ciu) jpUney;Ntyp njd;dpe;jpa irt rpj;jhe;j E}w;gjpg;Gf;fok; ypl;. nrd;id -18

ghu;it E}y;fs;:

1. Kidtu; e.Rg;Gnul;bahu;> njhy;fhg;gpak; fhl;Lk; tho;f;if newpfs;> godpag;gh gpuju;];> nrd;id.
2. Kidtu; Nrh.e.fe;jrhkp> Gwj;jpiz tho;tpay;> jkpo;g;gy;fiyf;fofk; - jQ;rhT+u;
3. Nfhtpe;juhrd;> njhy;fhg;gpau; $Wk; rKjhak;> ghup epiyak;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

njhy;fhg;gpak; nghUsjpfhuk;

Programme : B.Lit., Course Code : 15U6TL23

Semester : VI No.of hrs : 5

Course : Core No.of Credits : 4

Nehf;fk; : nra;Aspy; cktkTUGfspd; gad;ghLfis tpsf;Fjy;.

Nehf;fk; : nra;Aspy; nka;ghl;bd; gad;ghLfis tpsf;Fjy;.

Nehf;fk; : nra;Aspy; vOj;J> mir>rPh;> jis gad;ghLfis tpsf;Fjy;.

Nehf;fk; : nra;Aspy; mb> njhil> gh tiffs;. tz;zk; gad;ghLfis tpsf;Fjy;.

Nehf;fk; : caphpdq;fspd; tifg;ghL ciuj;jy;.

myF – **1 ctktpay;**

myF – **2 nka;g;ghl;bay;**

myF – **3 nra;Aspay**; - vOj;J> mir> rPu;;> jis

myF – **4 nra;Aspay**; - mb> njhil> gh tiffs;. tz;zk;

myF – **5 kugpay;**

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	ctkTUGfspd; gad;ghLfis Ghpe;J nfhz;ldh;.	2
CO-2	nra;Aspy; nka;ghl;bd; gad;ghLfis fw;Wf;nfhz;ldh;.	2
CO-3	nra;Aspy; vOj;J> mir>rPh;> jis gad;ghLfis fw;Wf;nfhz;ldh;.	1
CO-4	nra;Aspy; mb> njhil> gh tiffs;. tz;zk; gad;ghLfis fw;Wf;nfhz;ldh;.	1
CO-5	caphpdq;fspd; tifg;ghLfisj; njhpe;J nfhz;ldh;. fw;Wf;nfhz;ldh;	2

ghlE}y;:

1. njhy;fhg;gpak;> nghUsjpfhuk; (,sk;G+uzh; ciu) jpUney;Ntyp njd;dpe;jpa irt rpj;jhe;j E}w;gjpg;Gf;fok; ypl;. nrd;id -18

ghu;it E}y;fs;:

1. Kidtu; e.Rg;Gnul;bahu;> njhy;fhg;gpak; fhl;Lk; tho;f;if newpfs;> godpag;gh gpuju;];> nrd;id
2. Kidtu; Nrh.eh.fe;jrhkp> Gwj;jpiz tho;tpay;> jkpo;g;gy;fiyf;fofk; - jQ;rhT+u;.
3. m.r.Qhdrk;ge;jd;> mfKk; GwKk;> fq;if Gj;jf epiyak;> nrd;id

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

,f;fhy nkhopapay

Programme : B.Lit., Course Code : 15U6TL24
Semester : VI No.of hrs : 5
Course : Core No.of Credits : 4

Nehf;fk; : nkhopapaypd; tuyhW - xypapay; -capnuhypfs; - mtw;wpd; xypg;G Kiwfs; gapw;Wtpj;jy;

Nehf;fk; : xypad;fs; - khw;nwhypad;fs; gw;wp vLj;Jiuj;jy;.

Nehf;fk; : cUgdpay; - khw;WUgd;fs; gw;wp vLj;Jiuj;jy;.

Nehf;fk; : nrhw;nwhlhpay; - khw;wpyf;fzf; Nfhl;ghL gw;wp vLj;Jiuj;jy;.

Nehf;fk; : njhludpay; - nrhw;nghUs; khw;wk; gw;wp ciuj;jy;.

myF - 1

nkhopAk;> nkhopapaYk; - nkhopapaypd; tuyhW - 19> 20Mk; E}w;whz;Lfspy; nkhopapaypd; - xypapay; - xypapaypd; %d;W Jiwfs; - xypAWg;Gs; mtw;wpd; JiwfSk; capnuhypfs; - mtw;wpd; xypg;G Kiwfs; - neLik> mOj;jk; Fuy; Fuypir Mfpa Nky;epiy ,ay;Gfs;;.

myF - 2

xypadpay; - xypad;fs; - khw;nwhypad;fs; - xypadpaypd; rpy mbg;gil tpjpfs;

myF - 3

cUgdpay; - cUgd;fs; - khw;WUgd;fs; - ielhtpd; tpjpfs; - cUnghypad;fs; - nrhy; tiffs;

myF - 4

nrhw;nwhlhpay; - mz;ik cWg;Gg; gFg;gha;T - khw;wpyf;fzf; Nfhl;ghL – tsh;r;rp – Ngr;Rnkhop – xg;gpay; kPl;LUthf;fk;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

myF - 5

mikg;GKiwj; njhludpay; - %tifj; njhludpapay; nfhs;iffs; - nrhw;nghUs; khw;wk; - nrhw;nghUs; cwTk; nrhy; tifg;ghLk; - nrhw;nghUl;$Wfs; - nghUSwTk; nrhy; tifg;ghLk; - nghUl;gd;ik - xUnghUl;gd;nkhop - vjpHg;nghUz;ik

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	nkhopapaypd; tuyhW - xypapay; -capnuhypfs; - mtw;wpd; xypg;G Kiwfs; gapd;W gadile;jdh;	1
CO-2	xypad;fs; - khw;nwhypad;fs; gw;wp fw;Wf;nfhz;ldh;.	2
CO-3	cUgdpay; - khw;WUgd;fs; gw;wp fw;Wf;nfhz;ldh;.	2
CO-4	nrhw;nwhlhpay; - khw;wpyf;fzf; Nfhl;ghLfis fw;Wf;nfhz;ldh;.	2
CO-5	njhludpay; - nrhw;nghUs; khw;wk; gw;wp fw;Wf;nfhz;ldh;.	2

ghl E}y;fs;

1. Kidth; Kj;Jr;rz;Kfk; ,f;fhy nkhopapay;> Ky;iy epiyak; 9 ghujpefh; Kjy;njU jp.efh; nrdlid - 17
2. F.gukrptk;> ,f;;fhy nkhopapay;> milahsk; gjpg;gfk;> Gj;jhej;jk;> kz;zr;rey;Y}u;> jpUr;rp.

ghu;it E}y;fs;:

1. lhf;lH nghw;Nfh - nghJ nkhopapay;> ghup epiyak;> nrd;id
2. KidtH uh. rPdpthrd;> nkhop xg;gpaYk; tuyhWk;. mzpafk; gjpg;gfk;> nrd;id

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

gilg;gpyf;fpak

Programme : B.Lit., Course Code : 15U6TL25
Semester : VI No.of hrs : 5
Course : Core No.of Credits : 4

Nehf;fk; : khzth;fspd; gilg;ghw;wiy tsh;j;jy;

Nehf;fk; : r%fr; rpf;fy;fs; Fwpj;J khzth;fspd; gilg;ghw;wiy tsh;j;jy;

Nehf;fk; : ,jpfhrk; gw;wpa fUj;J nrwpit tsh;j;jy;

Nehf;fk; : khzth;fSf;F fbjk; vOJk; Kiwia czh;j;Jjy;

Nehf;fk; : ,jo;fs; jpiug;glq;fs; kpd; Clfq;fs; kjpg;gPLfs; fsg;gzpiaf; ifahSk; tpjj;ij vLj;Jiuj;jy;.

myF – 1 kuGf;ftpij

ntz;gh (my;yJ) Mrpupag;gh

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

myF – **2 GJf;ftpij** 20 mbfs;

myF – 3 i`f;$ ftpijfs;

myF – 4 rpWfij

(Fwpg;gpl;l nghUspy; %d;W gf;fq;fspy; mikjy;;)

myF – **5 Xuq;f ehlfk;**

(nfhLf;fg;gLk; jiyg;ignahl;b 4 my;yJ 5 gf;fq;fspy; mikj;jy;)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	kuGf;ftpij vOJk; jpwid tsh;j;Jf;nfhz;ldh;.	10
CO-2	GJf;ftpij vOJk; jpwid tsh;j;Jf;nfhz;ldh;	10
CO-3	i`f;ftpij vOJk; jpwid tsh;j;Jf;nfhz;ldh;.	8
CO-4	rpWfij vOJk; jpwid tsh;j;Jf;nfhz;ldh;	8
CO-5	ehlfk; vOJk; jpwid tsh;j;Jf;nfhz;ldh;.	10

ghHit E}y;fs;

1. m.fp.gue;jhkd;> ey;y jkpo; vOj Ntz;Lkh?>
2. G+u;zr;re;jpud;> fijapay;> milahsk; gjpg;gfk;>
3. G+u;zr;re;jpud; ftpijapay;> milahsk; gjpg;gfk;
4. E}w;whz;L jkpo; tsu;r;rp> rpl;b rptghyRg;ukzpak;> fpwpj;jt ,yf;fpaf; fofk;>
5. n[aNkhfd;> etPd jkpo; ,yf;fpak;> capu;nka; gjpg;gfk;> nrd;id.
6. ,uh[Nfhgyhr;rhupau; vOj;J nrhy; nghUs; ahg;G>];lhu; gpuRuk;> nrd;id.
7. F.gukrptk;> ,f;fhy jkpo; kuG milahsk;;>
8. fp.t.[fehjd;> ftpghlyhk; th>
9. kh.uhkypq;fk;> ehty; rpWfij ,yf;fpak;> (mofpay; $Wfs;)

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

nghpaHHpay;

Programme : B.Lit., Course Code : 15U6TL26
Semester : VI No.of hrs : 5
Course : Core No.of Credits : 4

Nehf;fk; : nghpahh; tho;Tk; gzpAk; gw;wp khzth;fs; mwpjy;;

Nehf;fk; : r%fr; rPHjpUj;jq;fs; vit vd;gij Fwpj;J khzth;fsp tsh;j;jy;

Nehf;fk; : ,jpfhrk; gw;wpa fUj;J nrwpit tsh;j;jy;

Nehf;fk; : khzth;fSf;F fbjk; vOJk; Kiwia czh;j;Jjy;

Nehf;fk; : ,jo;fs; jpiug;glq;fs; kpd; Clfq;fs; kjpg;gPLfs; fsg;gzpiaf; ifahSk; tpjj;ij vLj;Jiuj;jy;.

myF – 1 nghpahh; tho;Tk; gzpAk;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

gpwg;G> fy;tp> jpUkzk;> gFj;jwpT> kdg;ghq;F> fs;Sf;fil kwpay;> itf;fk;Nghu;> nghJtho;T> fhq;fpu]; EioT> fhq;fpu]; khehl;bypUe;J ntspNawy;> FbauR ,jo; njhlf;fk;> Rakupahij ,af;fk;> ghhg;gdy;yhjhh; khehL> tUzhrpuk xopg;G> ,e;jp vjpu;g;Gg; Nghuhl;lKk; rpiwAk;> jkpo;ehL jkpoUf;Nf jpuhtplf;fofj; Njhw;wk;> ePjpf;fl;rpj; jiytu;> kf;fs; ,af;fkhjy;> ;jpuhtpl Kd;Ndw;wf; fofk;> jkpo; kf;fs; eyg; Nghuhl;lq;fs;.

myF – 2 ,e;jpa jkpofr; r%fr; rPu;jpUj;j ,af;f tuyhW

Me;jpuehL> ftpQu; Ntkdh> gpuhkzpa vjpu;g;G> ,uhrhuhk; Nkhfd;uha;> gpuk;k rkh[k;> Rthkp jahde;ju> Mupa rkh[k> #u;jJf;fhuk;> jhNjhgh ghz;Luht;> khztu; ju;krig> NrhjpghG+Ny> rj;jpa Nrhj rkurk;> jef;ij ngupahupd; jd;kjpg;G ,yf;f Kd;Ndhb Nfush ehuhaz FU> <otu>; jPatu; r%f tpLjiy> jPz;lhik xopg;G.

jpUke;jpuk;> gf;jp ,af;fk;> rk;ge;ju; mg;gu; cwT> ,uhkhEru; #j;jpug; ngupa ek;gpf;ifiaf; FWthf Vw;wy;> jpyftjpahh;> fhiuf;fhyk;;ikahh;> Mz;lhs;> rpj;ju; kuG> rptthf;fpau;> rpw;wpyf;fpa kuG> mj;jpg;ghf;fk; m.Ntq;flhry ehafu;> itFz;lrhkp> ,uhkypq;f mbfshh;> jpU.tp.f

myF - 3 Rakupahij ,af;f tuyhW

Rakupahij ,af;fj; Njhw;wk;> Rakupahijr; rq;fk;> Nehf;fk;> jd; kjpg;G> rkj;Jtk;> rNfhjuj;Jtk;> ghh;g;gdy;yhjhh; 10 tJ khfhz khehL> jPu;khkdq;fs;> kjr;rlq;F ghh;g;ghdpau; ,y;yj;jpUkzk;> nrq;fw;gl;L Rakupahij khehL> tFg;Gthhp cupik> rhjpNgjk;> cau;T jho;T> tUzhrpuk kWg;G> ngz;zpd; kWkzk;> ,isQu; rq;fk;> tUzhrpuk kWg;G> ngz;zpd; jpUkz taJ> tpjit kWkzk;> ,isQu; rq;fk;> Rakupahij tbtq;fs;

myF - 4 ngz;tpLjiy:

Mz;> ngz; cau;T> fw;G> tpjit kWkzk;> nrhj;Jupik> ngz; fpsu;r;rpapd; Njit> ngz;zbikf;Ff; fhuzk;> nrhj;Jupik ,y;iy> Mz;> ngz; rkj;Jtk;> xj;j cupik> jdpr; nrhj;Jilik> murpay; gjtp Ntiyfspy; Ie;J tpOf;fhL Ntz;ly;.**myF - 5 itjPf vjpu;g;G**

tUzhrpuk mikg;Gk; jPz;lhikAk;> itf;fk; fpsu;r;rp> <otu;f;fhd mikg;G> fKjp> <NuhL> Nfhapy;; EioTg;Nghuhl;;lk;> jPz;lhikAk; tFg;Gthhp cupikAk;

vOj;J

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

<.nt.uh. fUj;J> fUj;Jg; gupkhw;w fUtp> gof;f tof;fg; gz;G NtWghLfSk;> fUj;jhf;f NtWghLfSk; tlnkhop vjpu;g;G> ,e;jp vjpu;g;G> ,e;jp vjpu;g;Gg; Nghuhl;;lk;> jkpo;nkhopf;fyg;G> fiyr;nrhy;yhf;fk;> vOj;Jr; rPu;jpUj;jk;.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	nghpahhpd; gFj;jwpTitAk; > murpay; nfhs;ifAk;> jkpo; kf;fSf;fhf mth; ghLgl;lijAk; khzth;fs; mwpe;J nfhz;ldh;	3
CO-2	r%f tpLjiyf;Fk;> jPz;lhik xopg;Gf;Fk; mth; ghLgl;lij khzth;fs; njhpe;J nfhz;ldh;	3
CO-3	ghh;g;ghdpau; ,y;yj;jpUkzk;> Rakupahij ,af;fk;> ngz;zpd; kWkzk;> vd gy Nghuhl;lq;fis elj;jp jPz;lhikia xopf;f ghLgl;lhh; vd;gij Ghpe;J nfhz;ldh;	4
CO-4	ngz;fspd; eyD}f;fhfTk;> ngz;fSk; r%fj;jpy; rk chpik ngw;W thoTk; mauhJ cioj;jhh; vd;gij khzth;fs; mwpe;J nfhz;ldh;	4
CO-5	tlnkhop vjpu;g;G> ,e;jp vjpu;g;G> ,e;jp vjpu;g;Gg; Nghuhl;;lk;> jkpo;nkhopf;fyg;G> fiyr;nrhy;yhf;fk;> vOj;Jr; rPu;jpUj;jk; Mfpatw;Wf;F nghpJk; ghLgl;lhh; vd;gij mwpjy;	3

ghlE}y;fs;

1. ngupahupay; njhFjp1>2 2004> Nt. MidKj;J> ijay; ehafp epidT E}y; ntspapl;lfk;> GJr;Nrup.;

2. Rakupahij ,af;fk;> 1990> kq;fs KUNfrd;> ghhpepiyak;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo;,yf;fpatpay; (gp.>ypl;)

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> ehkf;fy; - 3

(jd;dhl;rp)

(Njrpa ju kW kjpg;gPl;by; 'A'rhd;wpjo; ngw;wJ.)

(gy;fiyf;fof khdpaf; FOthy; 2(f) kw;Wk; 12(B) mq;fPfhuk; ngw;wJ)

ehkf;fy; - 637 003

jkpo;j;Jiw

,sq;fiy jopo; (gp.V.) - ghlj;jpl;lk;

njupTrhu; ghlKiw (CBCS)

KONeug; ghlj;jpl;lk; 2018-19

gp.V. jkpo;

Vision

khztu;fspilNa Njrgw;W jkpo; nkhopapd; njhd;ik kw;Wk; rpwg;ig jkpo;nkhop thapyhf fw;gpj;jy;.

Mission

khztu;fSf;F jha;nkhopg; gw;iw tsu;j;jy;.,iza top jkpo; Nritiag; gpd;gw;w Cf;Ftpj;jy;. jkpo;

nkhopapd; tsu;r;rpiaAk; rpwg;igAk; mjpfg;gLj;Jjy;.

PO : 1 : jpwk;gl NgRjy;:

Mq;fpyk; kw;Wk; jkpo; ,uz;bYk; Gyik ngw;wth;. njhopw; rhh;e;j kw;Wk; njhopy; rhuhj ciuahly;fspd; NtWghLfis mwpe;J nfhs;Sjy; njhopy;El;gj;Jld; ftdpj;jy;> NgRjy;> gbj;jy;> vOJjy; Mfpa jpwd;fis Nkk;gLj;Jjy;.

PO : 2 : Rw;Wr;#oy; ghJfhg;G:

Rw;Wr;#oiy rhh;e;J ,Uj;jy;> kWgad;ghL nra;jy;> kWRow;rp nra;jy; ,aw;ifNahL xd;wpUj;jy;. mjDld; ,aw;ifAk; kio ePiuAk; ghJfhj;J itf;f Njitahd eltbf;iffis Nkw;nfhs;Sjy;.

PO : 3 : MNuhf;fpa gapw;rp kw;Wk; newpKiwfs;:

md;whl tho;f;ifapy; jdpkdpjdpd; kjpg;Gfis cah;j;jpf; nfhs;s Nahfh kw;Wk; gpw clw;gapw;rp nra;jy;. ,jdhy; kdpjdpd; xOf;fk; Rakhpahij kw;Wk; tYthd xUikg;ghl;il cUthf;fKbAk;.

PO : 4 : r%f czh;T:

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

fpuhkg;Gwq;fis Nkk;gLj;Jtjw;fhf fpuhkg;Gw kf;fspd; #o;epiyfisg; Ghpe;Jnfhz;lnjhL r%f eydpy; mf;fiu nfhz;L kf;fSf;F Vw;gLk; gpur;rpidfisj; jPh;j;J ekJ Njrj;jpd; J}a;ikahd Fbkfdhf khWjy;.

PO : 5 : nghUshjhu epGzh;:

jq;fspd; jpwikfis ntspg;gLj;Jjy; kw;Wk; Nkk;gl;l njhopy;El;gq;fSld; xUq;fpize;J ,e;jpa> Njrpa kw;Wk; cyfshtpa Nghl;bahsuhf khw;wg;gLfpd;wdh;.

PO : 6 : Kd;khjphp:

r%fj;jpd; nraypy; cs;s tpisahl;Lfspd; %yk; epWtd mwpTrhh; kw;Wk; jdpg;gl;l jpwd;fis tsh;j;Jf; nfhs;s xUtDf;F r%fk; Kd;khjphpahf ,Uf;fpwJ.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

,sq;fiy (jkpo;)

Sem.	Part	Course Code	Course Title	Ins Hrs/ Week	Credit	Exam Hrs	Marks CIA	Marks EA	Total
Sem.	Part	Course Code	Course Title	Ins Hrs/ Week	Credit	Exam Hrs	CIA	EA	Total
	I	18U1FTA01	nghJj;jkpo; - I	5	4	3	25	75	100
	II	18U1FEN01	ENGLISH PAPER - I	6	4	3	25	75	100
	I	18U2FTA02	nghJj;jkpo; - II	5	4	3	25	75	100
	III	18U1TA01	,yf;fzk; - 1 ed;D}y; vOj;J	5	4	3	25	75	100
	II	18U2FEN02	ENGLISH PAPER - II	6	4	3	25	75	100
I	III	18U2TA03	,yf;fzk; - 2 ed;D}y;				25	75	100
	III	18U1TA02	,f;fhy ,yf;fpak; nrhy;	6	4	3	25	75	100
	IV	Allied - I	jkpof ;tuyhWk; kf;fSk; gz;ghLk;	5	4	3	25	75	100
II	IV Elective	Elective - I 18U1TAA01 18U2TAE01	mfnq;F ehl;L tuyhW	5	4	3	25	75	100
	IV	18U1VE01	Nahfh kw;Wk; gapw;rp	2	1	3	25	75	100
	Allied - II	18U2TAA02	jkpo; ;yf;fpa tuyhW	5	4	3	25	75	100
			nkhj;jk;	**30**	**21**				**600**
	IV	18U2VE02	tho;f;if kjpg;gPLfs;	2	1	3	25	75	100
	IV	18U2ES01	Rw;Wr;#oypay;	2	1	3	25	75	100
			nkhj;jk;	**30**	**22**				**700**

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

,sq;fiy jopo; (gp.V.) - ghlj;jpl;lk; (,uz;lhkhz;L)

Sem.	Part	Course Code	Course Title	Ins Hrs/ Week	Credit	Exam Hrs	Marks		Total
							CIA	EA	
III	I	18U3FTA03	nghJj;jkpo; jhs;- III	5	4	3	25	75	100
	II	18U3FEN03	ENGLISH PAPER - III	5	4	3	25	75	100
	III	18U3TA04	,yf;fzk; - ek;gpafg;nghUs;	6	5	3	25	75	100
	IV - Allied	Allied - III 18U3TAA03	jkpo; nkhop tuyhW	5	4	3	25	75	100
	ELECTIVE - IV	Elective – II 18U3TAE02	,jopay;	5	4	3	25	75	100
	IV	Elective – III 18U3TAE03	mwptpay; jkpo;	2	2	3	25	75	100
	NMEC IV	18U3TAN01	rhiyg;ghJfhg;G tpjpfs;	2	2	3	25	75	100
nkhj;jk;				**30**	**25**				**700**

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

Sem.	Part	Course Code	Course Title	Ins Hrs/ Week	Credit	Exam Hrs	Marks		Total
							CIA	EA	
IV	I	18U4FTA04	nghJj;jkpo; jhs;-IV	5	4	3	25	75	100
	II	18U4FEN04	ENGLISH PAPER – IV	5	4	3	25	75	100
	III	18U4TA05	Gwg;nghUs; ntz;ghkhiy	6	5	3	25	75	100
	SKILL (SBEC)	18U4TAS01	nkhopngaHg;gpay;	5	4	3	25	75	100
	IV - Allied	18U4TAA04	Nfhapw;fiyfs;	5	4	3	25	75	100
	SBEC	18U4TAS02	rpj;jH ,yf;fpak;	2	1	3	25	75	100
	SBEC	18U4TAS03	rpe;jidapay;	2	1	3	25	75	100
nkhj;jk;				**30**	**23**				**700**

,sq;fiy jopo; (gp.V.) - ghlj;jpl;lk; (,uz;lhkhz;L)

Sem.	Part	Course Code	Course Title	Ins Hrs/ Week	Credit	Exam Hrs	Marks		Total
							CIA	EA	
III	I	18U3FTA03	nghJj;jkpo; jhs;-III	5	4	3	25	75	100
	II	18U3FEN03	ENGLISH PAPER - III	5	4	3	25	75	100
	III	18U3TA04	,yf;fzk; -ek;gpafg;nghUs;	6	5	3	25	75	100

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

	IV - Allied	Allied - III 18U3TAA03	jkpo; nkhop tuyhW	5	4	3	25	75	100
	ELECTIVE - IV	Elective – II 18U3TAE02	,jopay;	5	4	3	25	75	100
	IV	Elective – III 18U3TAE03	mwptpay; jkpo;	2	2	3	25	75	100
	NMEC IV	18U3TAN01	rhiyg;ghJfhg;G tpjpfs;	2	2	3	25	75	100
nkhj;jk;				**30**	**25**				**700**

Sem.	Part	Course Code	Course Title	Ins Hrs/ Week	Credit	Exam Hrs	Marks		Total
							CIA	EA	
IV	I	18U4FTA04	nghJj;jkpo; jhs;-IV	5	4	3	25	75	100
	II	18U4FEN04	ENGLISH PAPER – IV	5	4	3	25	75	100
	III	18U4TA05	Gwg;nghUs; ntz;ghkhiy	6	5	3	25	75	100
	SKILL	18U4TAS01	nkhopngaHg;gpay;	5	4	3	25	75	100

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

	(SBEC)								
	IV - Allied	18U4TAA04	Nfhapw;fiyfs;	5	4	3	25	75	100
	SBEC	18U4TAS02	rpj;jH ,yf;fpak;	2	1	3	25	75	100
	SBEC	18U4TAS03	rpe;jidapay;	2	1	3	25	75	100
nkhj;jk;				**30**	**23**				**700**

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

Program Specific Outcomes (PSos)

PSO1	goq;fhyj; jkpo; ,yf;fpa ,yf;fzq;fspd; tuyhw;wpid mwpe;Jnfhs;s gad;gL fpwJ
PSO2	jkpo; ,yf;fzk; Fwpj;J khzth;fs; mwpar; nra;jy;.
PSO3	goe;jkpohpd; tho;tpay; xOf;fKiwfis gz;ila ,yf;fpak; top mwpar; nra;jy;
PSO4	gf;jp ,yf;fpaq;fs; njhlh;ghd jkpoh; fiyfs; rpj;jhe;jf; fUj;Jf;fis mwpar; nra;jy;.
PSO5	jkpopyf;fpaq;fis xg;gpl;L Muha;r;rp Kiwapy; mwpe;J nfhs;Sjy;
PSO6	gz;ila jkpoh;fspd; mwtho;tpaiyAk; rpw;wpyf;fpa tiffis mjd; rpwg;GfisAk; mwpar; nra;jy;.
PSO7	,d;iwa kdpj tho;tpaYf;F Vw;wthW kdpj chpikiaAk; tho;tpay; njhlh;ghd fUj;Jf;fis khztHfs; czh;j;jy;
PSO8	jkpo; nkhopapd; rpwg;GfisAk; jkpo;nkhopia gpwnkhopfNshL xg;gpl;L ghh;j;jy
PSO9	fhyj;ij ntd;W tho;e;j gz;ilajkpoh;fspd; ,aw;if kUj;JtKiwfisAk; ,aw;ifiag;ghJfhf;fFk;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

	Rw;Wr;#oy; Fwpj;j fUj;Jf;fis mwpar; nra;jy;.
PS10	tsh;e;J tUk; ,d;iwa Clf tsh;r;rpia khzth;fs; mwpar; nra;jy;.
PS11	fhye;NjhWk; tsh;r;rp mile;J ftpij rpWfijapd; tsh;r;rp Nghf;fpid khzth;fs; mwpar; nra;jy;.
PS12	,aw;ifNahL ,ize;j gz;ghl;Lf;fy;tpNa jw;fhy tsh;r;rpNa Muha;jy;.

Kjd;ikg; ghlk;: jhs; 1

,yf;fzk;- 1 ed;D}y; - vOj;J

Programme : B.A., TAMIL Course Code : 18U1TA01

Semester : I No.of hrs : 6

Course : Part - III **No.of Credits : 4**

ghl Nehf;fk;:

jkpopd; Ie;jpyf;fzq;fSs; Kjyhtjhd vOj;jpyf;fzj;ij khzth;fSf;F mwpTWj;jy;

myF-1 ghapuk; (nghJg;ghapuk;> rpwg;Gg;ghapuk;)
.;

myF-2 vOj;jpay;;.;.

myF-3 gjtpay;

myF-4 caphPw;Wg; Gzhpay;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

myF-5 nka;aPw;Wg; Gzhpay;> cUG Gzhpay;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	ghapuk; jd;ikfis vLj;Jiug;gJ.	01
CO-2	vOj;jpd; jd;ikapid mwpe;J nfhz;ldh;	08
CO-3	gjtpaypy; gFgjk;;;;;; gfhgjk; gw;wpa nra;jpfis mwpe;J nfhz;ldh;	02
CO-4	capnuOj;Jf;fs; vt;thW GzUfpd;wd vd;gij mwpe;J nfhz;ldh;	02
CO-5	nka;naOj;Jf;fs; vt;thW GzUfpd;wd vd;gij mwpe;J nfhz;ldh;	02

ghlE}y;

1. MWKfehtyu; (c.M)> ed;D}y;-fhz;bifAiu> fof ntspaPL> nrd;id

ghu;it E}y;fs;;

1. NrJghz;bad;> re;jp tpjpfs; gpupj;jy;> kJiu fhkuhru; gy;fiyf;fof ntspaPL> kJiu.
2. jpUKUfd;> ,yf;fz vz;zq;fs;> ghtyu; gz;iz gjpg;gfk;> GJr;Nrup.
3. nr.it.rz;Kfk;> ,yf;fz cUthf;fk;> nka;ag;gd; gjpg;gfk;> rpjk;guk;
4. Kj;Jf;Fkud;> jkpo; kuG> rhtfr;Nrup> aho;g;ghzk;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

Kjd;ikg; ghlk;: jhs; 2

,f;fhy ,yf;fpaq;fs;

Programme	: B.A., TAMIL	Course Code	: 18U1TA02
Semester	: I	No.of hrs	: 5
Course : Part - III		**No.of Credits**	**: 4**

ghlNehf;fk; : ,f;fhy jkpo; ,yf;fpa tifikfspd; khjphpfisf; fw;gpj;jy;

myF – 1

m) ghujpahh; - ghQ;rhyp rgjk;

M) ghujpjhrd; - rQ;rPtp gh;tjj;jpd; rhuy;

myF - 2

m) ftpkzp> r.J.R Nahfpahh; - ckh;fa;ahk; ghly;fs;

M) rpw;gp - xU fpuhkj;J ejp

myF – 3: ciu eil (cjph;e;j kyh;fs;)

ciueilj; njhFg;G -

myF – 4: rpWfij

m) n[afhe;jd; - ‘n[afhe;jd; rpWfijfs;

M. ehty;

rp.Mh;. utPe;jpud; - ‘XiIg;Gy;’

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

myF – 5: ehlfk;

fh. muq;frhkp - fdif

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	kuGf;ftpij tsh;r;rp> tuyhW mwpe;Jf;nfhs;Sjy;.	7
CO-2	GJf;ftpijapd; gad;ghl;bidAk;> gilj;jy; jpwd; tsh;j;jy; gw;wpAk; njhpe;Jf;nfhs;Sjy;;;.	7
CO-3	ciueil Kiw gw;wp mwpe;Jf; nfhs;Sjy;.	8
CO-4	tl;lhu ehty; > rpWfijfs; gw;wp mwpe;Jf; nfhs;Sjy;	8
CO-5	ehlfk; %yk; fjhghj;jpuq;fspd; Kf;fpaj;Jtj;ij mwpjy;	8

ghlE}y;: ‘ckh;fa;ahk; ghly;fs;’
r.J.R.Nahfpahh;
hp\p gg;spNf\d;];>
9> E}wb NuhL> fhe;jpGuk;>
Nfhit – 12

n[afhe;jd; - ‘n[afhe;jd; rpWfijfs;
rhuh gg;sprh;];>
78> thdg;gl;liu njU>
njg;gf;Fsk;> jpUr;rp – 620 002

rp.Mh;. utPe;jpud; - ‘Xilg;Gy;’
epA+nrQ;Rhp Gf; `T]; (gp) ypl;>
41-gp> rpl;Nfh ,d;l];bhpay; v];Nll;>

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)
mk;gj;J}h;> nrd;id – 600 098.

fh. muq;frhkp - fdif
epA+nrQ;Rhp Gf; `T]; (gp) ypl;>
41-gp> rpl;Nfh ,d;l];bhpay; v];Nll;>
mk;gj;J}h;> nrd;id – 600 098.

rhh;Gg;ghlk;: jhs; 1
jkpof tuyhW – kf;fSk; gz;ghLk;

Programme	: B.A., TAMIL	Course Code	: 18U1TAA01
Semester	: I	No.of hrs	: 6
Course : Part - III		**No.of Credits**	**: 4**

ghlNehf;fk;

jkpof tuyhw;iwAk;> kf;fspd; gz;ghl;ilAk; khzth;fSf;Ff; fw;gpj;jy;

myF – 1

jkpof tuyhw;Wf;fhd mbg;gil Mjhuq;fs; - tuyhw;Wf;F Kw;gl;l fhyk; - kj;jpa fhyk; - ehfhpfKk; gz;ghLk; - jkpofj;jpd; ,aw;if mikg;Gfs; - tuyhw;Wf; fhyj;Jf;F Ke;ija jkpofk;.

myF – 2

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

rpe;Jntsp mfo;thuha;r;rp – gz;ila jkpohpd; may;ehl;Lj; njhlh;Gfs; - jkpo; tsh;j;j rq;fk; - rq;f ,yf;fpak;

myF – 3

gz;ilj; jkpohpd; tho;f;if – czT – mzpfyd;fs; - ciwAs; - thzpfk; - tpisahl;Lfs; - fiyfs;- fy;tp – Fyq;fs; - nkhop – rq;ffhy Ml;rp Kiw – flTSk; rkaKk; - mur guk;giu – fsg;gpuh;fs; gy;yth;fs;.

myF – 4

jkpofj;jpy; ehd;fhk; E}w;whz;L Kjy; xd;gjhk; E}w;whz;L tiu r%f epiy – Nrhog; Nguurpd; Njhw;wk; - tsh;r;rp – tPo;r;rp – Nrhoh; fhyj;jpy; jkpohpd; rKjhak; - ghz;bahpd; Vw;wKk; tPo;r;rpAk;.

myF – 5

kJiu ehaf;fh;fs;- jkpofj;jpy; 13 Kjy; 18 Mk; E}w;whz;L tiu r%fepiy – INuhg;gpah;fspd; tuT – gj;njhd;gjhk; E}w;whz;bd; murpaYk; r%fepiyAk; - ,Ugjhk; E}w;whz;by; jkpofk;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jkpof kf;fspd; tuyhw;wpid mwpa gad;gLfpwJ	1
CO-2	jkpof Ke;ija epiy> fhyR+o;epiyfis mwpe;Jf; nfhs;Sjy;	3
CO-3	rq;fk; tsh;e;j tpjq;fis mwpe;Jf; nfhs;Sjy;	4
CO-4	Ml;rp Kiw fhytiuaiwia mwpe;Jf; nfhs;Sjy;	1
CO-5	E}w;whz;Lfspd; khw;wk; gw;wp mwpe;Jf; nfhs;Sjy;	1

ghlE}y;

lhf;lh; Nf.Nf.gps;is - jkpof tuyhW – kf;fSk; gz;ghLk;
cyfj; jkpohuha;r;rp epWtdk;>
jukzp> nrd;id – 600 013.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

ghh;it E}y;fs;

1.Nt.jp. nry;yk; - jkpof tuyhWk; - gz;ghLk;'
kzpthrfh; gjpg;gfk;>
31> rpq;fh; njU> ghhpKid
nrd;id – 600 108

2. Kidth; m.jl;rpz%h;j;jp> - jkpoh; ehfhpfKk; gz;ghLk;'
aho; ntspaPL> AP 1108
njd;wy; FbapUg;G>
%d;whk; njU>
Nkw;F mz;zhefh;>
nrd;id – 600 108

3. fzpad; ghyd; - goe;jkpo; ,yf;fpaKk; tuyhWk;.

Nahfh kw;Wk; gapw;rp

Programme	: B.A., TAMIL	Course Code	: 18U1VE01
Semester	: I	No.of hrs	: 2
Course : Part - IV		**No.of Credits**	**: 1**

ghlNehf;fk;:

,sk; taJ Kjy;> cly;> kdk; ,uz;ilAk; gf;Ftkhf itj;Jf; nfhs;s Ntz;bajd; mtrpaj;ij khzth;fSf;F czur; nra;jy;

myF – 1

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

NahfKk; cly;eyKk;

clyikg;G – vspaKiw clw;gapw;rp – kfuhrdk; - Nahfrdq;fs;

myF – 2

,sik fhj;jy; - ghYzh;Tk; Md;kPfKk; - kdjpd; 10 gbepiyfs; - kd miyr;Roy;

myF – 3

Fzeyg; NgW

tho;tpd; Nehf;fk; - vz;zk; Muha;jy; - Mir rPuikj;jy; - rpdk; jtph;j;jy;

myF – 4

ftiy xopj;jy; - tho;j;Jk; gaDk; - el;Geyk; - jdpkdpj mikjp

myF – 5

nray; tpisTj; jj;Jtk; - kdj;J}a;ik> tpidj; J}a;ik – md;Gk; fUizAk; - gz;ghl;Lf; $Wfs;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	khzth;fis clw;gapw;rpapy; <Lgl mwpe;J nfhz;ldh;	12
CO-2	kdpj kdepiyia xUepiyg;gLj;Jjy;	12
CO-3	kdpj tho;tpd; epiyia njhpe;Jf; nfhs;Sjy;	7
CO-4	tho;f;if khw;wk; Fwpj;J mwpe;J nfhs;Sjy;.	9
CO-5	,aw;if gad;ghl;ilAk;> ehfhpj;ijAk; mwpe;J tho;f;if Kiwia khw;wpf;nfhs;Sjy;	12

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

ghlE}y;

‘kdtsf; fiy Nahfh’

cyf rKjha Nrth rq;fk;

Ntjhj;jphp gjpg;gfk;>

156> fhe;jp[p NuhL>

<NuhL – 638 001

Nghd; - 0424 – 2263845

ghh;it E}y;fs;

kdtsf;fiy Nahfh – I – cyf rKjha Nrh rq;fk;

kdtsf;fiy Nahfh – II – Ntjhj;jphp gjpg;gfk;

kdtsf;fiy Nahfh – III – fhe;jp[p NuhL>

vspaKiw clw;gapw;rp - <NuhL – 638 001.

Nahfg; gapw;rpfs; - Nghd;: 0424 – 2263845

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

,uz;lhk; gUtk;

,yf;fzk; - 2 (ed;D}y;– nrhy;yjpfhuk;)

Programme : B.A., TAMIL Course Code : 18U2 TA03

Semester : II No.of hrs : 6

Course : Part - III **No.of Credits : 4**

ghl Nehf;fk;:

ehd;Ftifr; nrhw;fspd; ,yf;fzj;ijf; fw;gpj;jy;

myF – 1

ngahpay;

myF – 2

tpidapay;

myF – 3

nghJtpay;

myF – 4

,ilapay;

myF – 5

chpapay;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	ngah;fspy; cs;s khw;wq;fis mwpe;J nfhz;ldh;	1
CO-2	tpidnrhw;fshy; Vw;gLk; khw;wq;fis czh;e;J nfhz;ldh;	2
CO-3	nrhw;fspy; Vw;gLk; khw;wq;fis tpsq;fpf;nfhz;ldh;.	2
CO-4	,ilr;nrhw;fs; gw;wp mwpe;J nfhz;ldh;	5
CO-5	cupr; nrhw;fspd; rpwg;gj; jd;ikia mwpe;Jf; nfhz;ldh;	2

ghlE}y;:

ed;D}y; fhz;bif ciu – fof ntspaPL

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

nfhq;Fehl;L tuyhW

Programme	: B.A., TAMIL	Course Code	: 18U2TAE01
Semester	: II	No.of hrs	: 5
Course : Part - IV Elective		No.of Credits	: 4

ghl Nehf;fk; : nfhq;Fehl;L tuyhW gw;wp mwpjy; - jkpo;ehl;Lr; rhpj;jpuj;jpy; nfhq;F ehLk; Kf;fpa ,lk; tfpj;jij khzth;fSf;Ff; fw;gpj;jy;

myF – 1

nfhq;F ehl;L vy;iyfs; - nfhq;F ehl;bd; gug;G – gphpTfs; - mikg;G – gz;ila epiy – gz;ila Fbfs; - gz;ila rhpj;jpuk; cNuhkhdpa cwT – cNuhkdpa ehzaq;fs;.

myF – 2

mjpfkhd; - nkshpaUk; NfhrUk; - nfhq;F Njr murh;fs; - fq;fh;fs; - gy;yth;fs; - FWepykd;dh;fs; - ,uh\;bu$lh;fs; - nfhq;F ehl;by; Re;ju%h;j;jp Rthkpfs; tUif - ,uh\;bu$lh;fs; tPo;r;rp

myF – 3

Nruh;fs; Mjpf;fk; - Nrhoh; Ml;rp – nfhq;F Nrhoh;fs; - Nfhit ngah;f;fhuzk; - kUjkiy gw;wp fy;ntl;Lfs;.

myF – 4

fPioehl;L epiy – Nkiyehl;L epiy – ghz;ba NguuR – n`ha;rhsh;fs; - Nfus Mh;g;ghl;lk; - Kfk;kjpaj; njhy;iyfs; - gjpdhd;fhk; E}w;whz;by; nfhq;F ehl;L epiy

myF – 5

tp[aefu Ml;rpapy; nfhq;F ehl;L epiy – ehaf;fh; cw;gj;jp – ikR+h; Nghh; - Mq;fpy Ml;rpj; njhlf;fk; - gj;njhd;gjhk; E}w;whz;bd; Kw;gFjp> gpw;gFjp - ,Ugjhk; E}w;whz;L

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jkpo;ehl;L rhpj;jpuj;jpy; nfhq;F ehl;L epiyia njhpe;J nfhs;Sjy;	1
CO-2	nfhq;F ehl;L tyuhw;iw mwpe;J nfhs;Sjy;.	1
CO-3	Nfhit ngaw;fhuzk; gw;wp mwpjy;	3
CO-4	fPioehl;L epiy> Nkiyehl;L epiyfis mwpe;J nfhs;Sjy;	3
CO-5	Mq;fpy Ml;rp epiyfis mwpe;Jf; nfhs;Sjy;	1

ghlE}y;:

nfhq;Fehl;L tuyhW - Nfhit fpohh;
Nfh.k. ,uhkr;re;jpud; nrl;bah;>
Ng&h; Gyth; Nguit>
Nfhak;Gj;J}h;.

ghh;it E}y;:

nfhq;Fehl;L tuyhW - kapiy rPdp.Ntq;flrhkp>
ehk; jkpoh; gjpg;gfk;>
17/1> jhr;rp mUzhr;ryk; njU>
kapyhg;g+h;>

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

jkpo; ,yf;fpa tuyhW

Programme	: B.A., TAMIL	Course Code	: 18U2TAA02
Semester	: II	No.of hrs	: 5
Course : Allied - II		**No.of Credits**	**: 4**

ghlNehf;fk;: njhd;ikf; fhyk; Kjy; ,f;fhyk; tiu jkpopy; Njhd;wpa ,yf;fpa E}y;fs; midj;ijAk; tuyhw;W Nehf;fpy; fw;gpj;jy;

myF – 1

fd;dpj;jkpo; xU fz;Nzhl;lk; - rq;f fhyk; - Kr;rq;fq;fs; - vl;Lj;njhifAk; gj;Jg;ghl;Lk;- rq;fg;Gyth; rpyh; - mfKk; GwKk; - rq;f ,yf;fpar; rhy;G – rq;f fhyk; nghw;fhyk;

myF – 2

gjpndz;fPo;f;fzf;F E}y;fs; - ,ul;ilf;fhg;gpaq;fs; - ehad;khh;fs; - Mo;thh;fs; - ngsj;jKk; jkpOk; - rkzKk; jkpOk; - irtKk; jkpOk; - irt rpj;jhe;j rhj;jpuq;fs; - itzKk; jkpOk;.

myF – 3

fhg;gpa tsh;r;rp – Guhzq;fs; - rpw;wpyf;fpaq;fs; - gjpndz;rpj;jh;fs; - ciuahrphpah;fs; - gpw;fhyg; Gyth;fs;.

myF – 4

fpwpj;JtKk; jkpOk; - ,RyhkpaKk; jkpOk; - 19Mk; E}w;whz;Lfspy; jkpo; tsh;r;rp

myF – 5

20Mk; E}w;whz;Lfspy; jkpo; tsh;r;rp – GJf;ftpij – ciueil – rpWfij – ehty; - jhspiffs; - ,irj;jkpo; - ehlfj;jkpo; - ehl;Lg;Gw ,yf;fpak; - fl;Liu ,yf;fpak; - jpwdha;Tf;fiy – fy;ntl;bay; - gpwehLfspy; jkpo;

CO No.	Upon completion of this course, students will be able to	PSOs

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

		addressed
CO-1	jkpof rpwg;G tzpfk;> tuyhw;Wr; rhd;Wfis njhpe;J nfhs;Sjy;.	3
CO-2	rq;ffhyk; vt;thW ,Ue;jJ vd;gij mwpe;J nfhs;Sjy;	3
CO-3	fPo;fzf;F kw;Wk; fhy tiuaiw E}y;fisg; gw;wp mwpjy;	1
CO-4	gf;jp tsh;r;rp> jkpo; tsh;e;j Gyth;fspd; epiyfis mwpe;J nfhs;Sjy	4
CO-5	jkpof rpwg;G tzpfk;> tuyhw;Wr; rhd;Wfis njhpe;J; nfhs;Sjy;.	2

ghlE}y;

1. jkpo; ,yf;fpa tuyhW – kJ.r. tpkyhde;jk;

   mgpuhkp gjpg;gfk;

   78> nfhbkuj; njU> ,uhaGuk;.

   nrd;id – 600 013.

ghh;it E}y;fs;

1. jkpo; ,yf;fpa tuyhW – Kidth;. r.<];tud;
   eph;kyh gjpg;gfk;>
   kJiu – 1 nry;: 9842096333.

2. jkpo; ,yf;fpa tuyhW – Kidth;. K.tujuhrd;
   cyfj;jkpo; Muha;r;rp epWtdk;
   nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

tho;f;if kjpg;gPLfs;

Programme: B.A., TAMIL Course Code : 18U2VE02

Semester : II No.of hrs : 2

Course : IV No.of Credits : 1

Nehf;fk;:

tho;tpd; ntw;wpiaj; jPu;khdpf;Fk; kjpg;Gfspd; %ykhf tho;f;ifapd; nghUisAk; Kf;fpaj;Jtj;ijAk; Nghjpg;gJ.

myF – 1 kjpg;Gfs;

mwpKfk; - nghUs;> Nehf;fk;> kjpg;Gfspd; Mjhuq;fs; kw;Wk; kjpg;Gfspd; tiffs; - kjpg;GfsJ tPPo;r;rpf;fhd fhuzpfs;> nray;Kiwfs;> mZFKiwfs; kw;Wk; kjpg;Gfspd; tPo;r;rpiaj; jPu;khdpf;Fk; fhuzpfs;.

myF - II jdpkdpj kjpg;Gfs;

jd;dk;gpf;if – nghUs;> Kf;fpaj;Jtk;> mbg;gil topKiwfs;> RanraY}f;fr; nray;ghL – Ra nraY}f;ff; $Wfs; - Nehf;fq;fs; - Ra nraY}f;fg; gapw;rp Kiwfs;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

myF – III mwnewp kw;Wk; Md;kPf kjpg;Gfs;:

gw;wpd;ik – khwh kdKilik – mfpk;ir – fPo;g;gbjy; - ,iwNtz;ly; - J}a;ik – jd;dy kWg;G kw;Wk; cz;ikAilik.

myF – IV r%f kjpg;Gfs;:

gjpy; nrhy;Yk; nghWg;G – rNfhjuj;Jtk; - #oypay; Fwpj;j mf;fiw – et ehfupfk; - ciuahly; - flikAzu;T – kd;dpg;G – Rje;jpuk; - el;GwT – ed;wpAzu;T – tpUe;N;jhk;gy; - ePjp> md;G – nghWik – nghWg;G – Nrit - ,uf;f czu;T – $l;nlhUik czu;T – rfpg;Gj; jd;ik - gfpu;T kw;Wk; tpisahl;Lg; Nghl;b czu;T.

myF – V gofpay; kjpg;Gfs; kw;Wk; jiyikg; gz;G:

ey;nyhOf;fj;jpd; nghUs;> tiffs; kw;Wk; mbg;gilfs;> cz;Zk; xOf;f Kiwfs; kw;Wk; rhJupaKk; gz;G eaKk;> Nkyjpfhupaplk; fbjj; njhlu;gpdpy; rKjhaj;jpy; gof;f tof;fKk; kw;Wk; elj;ijfSk;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	kjpg;Gfspd; tiffs;> mZFKiwfs;> fhuzpfis mwpe;J nfhs;Sjy;	10
CO-2	kdpj kjpg;Gfspd; Kf;fpaj;Jtj;ij mwpe;J nfhz;ldh;.	7
CO-3	mfpk;ir kw;Wk; Md;kpf kjpg;Gfisf; fw;Wg; gadile;jdh;	6
CO-4	rNfhjuj;Jtk;> rfpg;Gj;jd;ik kw;Wk; flikAzh;it Ghpe;Jnfhz;ldh;.	10

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

CO-5	r%f ey;nyhOf;fq;fis fw;Wg; gadile;jdh;.	3

ghl E}y;fs;

1. tho;tpy; tsk; ngw> Kidtu; r.,d;dhrpKj;J> Nr.r> itfiwg;gjpg;gfk;> nrd;id.

2. tho;tpy; ntw;wp ngw> Kidtu; r.,d;dhrpKj;J Nr.r.> itfiwg;gjpg;gfk;> nrd;id.

Rw;Wr;R+oypay;

Programme : B.A., TAMIL Course Code : 18U2ES01
Semester : II No.of hrs : 2
Course : Part - IV **No.of Credits : 1**

ghl Nehf;fk;

Rw;Wr;R+oy; fy;tpiag; gw;wp mwpe;J nfhs;Sjy; kw;Wk; Rw;Wr;R+oy; khRgLtij jtph;f;Fk; topKiwfis ifahSjy;.

myF – 1

Rw;Wr;R+oy; nghUs; tpsf;fk; - Rw;Wr;R+oypd; fhuzpfs; - Rw;Wr;R+oy; khRglf; fhuzq;fs; - khRgLjiyj; jtph;f;Fk; topfs;

myF – 2

Rw;Wr;R+oypd; jd;ik – mikg;G – tiffs; - Rw;Wr;R+oYk; kdpjDk; - ,aw;if tsq;fs; - ,aw;if tsq;fspd; tiffs; - R+o;epiy mikg;G kz;lyk; - R+o;epiy kz;lyj;jpd; tiffs;.

myF – 3

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

Rw;Wr;R+oy; khRfs; - mkpykhf – XNrhd; mLf;F – G+kpapy; ntg;g cah;Tk; gRq;$l tpisTk; - jplf;fopT Nkyhz;ik - ,aw;ifr; rPw;wq;fSk; Nkyhz;ikAk;.

myF – 4

rKjhar; rpf;fy;fSk; Rw;Wr;R+oYk; - kf;fs; njhifg; ngUf;fKk; Rw;Wr;R+oYk; - Rw;Wr;R+oy; fy;tp.

myF – 5

If;fpa ehl;litAk; Rw;Wr;R+oYk; - kdpjDk; caphpa kz;lyj; jpl;lKk; - Gtp cr;rp khehL – Rw;Wr;R+oy; ghJfhg;Gr; rl;lq;fs; kw;Wk; muR eltbf;iffs; - fjph;tPr;Rk; mjd; tpisTfSk; - Rw;Wr;R+oy; ghJfhg;G ,af;fq;fs; - kdpj Neha;fSk; tiffSk; - nghJr; RfhjhuKk; J}a;ikAk;.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Rw;Wr; #oiyg; ghJfhf;Fk; Kiwfisg; gw;wpkhztHfs; mwpar; nra;jy;.	9
CO-2	czTtsq;fspd; Nkk;ghL Fwpj;J khzth;fis mwpar; nra;jy;	9
CO-3	khRghL Fwpj;j tpopg;Gzh;it khzth;fs; mwpar; nra;jy;	12
CO-4	Rw;Wg;Gw khRghL cyf ntg;g kakhf fhuzk; vd;gjid mwpar; nra;jy;	9
CO-5	Rw;Wg;Gw rPh;Nfl;lhy; ,aw;ifapy; Vw;gLk; khw;wj;ij mwpar; nra;jy;	12

ghlE}y;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

Kidth; N[. jpahfuh[d; - Rw;Wr; R+oypay;
rhuh gg;sprh;];>
jpUr;rp.
nry;. 98420 41112.

%d;whk; gUtk;
,yf;fzk; - lll
(ek;gpafg;nghUs;)

Programme	**: B.A.,**	**Course Code**	**: 18U3TA04**
Semester	**: III**	**No.of hrs**	**: 6**
Course	**: Core**	**No.of Credits**	**: 4**

Nehf;fk; : jkpoh; tho;tpd; fsT tho;f;ifia ciuj;jy;.

Nehf;fk; : fsT epfo;Tfspd; gbepiyfis ciuj;jy;.

Nehf;fk; : jkpoh; tho;tpd; Mjhukhf tpsq;Fk; fstpay; nra;jpfis mwpjy;.

Nehf;fk; : fstpw;Fk; fw;gpw;Fk; ,izg;ghf tpsq;Fk; tiutpaiy czh;j;Jjy;.

Nehf;fk; : ,y;yw tho;tpd; ,d;gk; gphpT Jd;gk; Nghd;wtw;iw czh;j;Jjy;.

myF – **1** ek;gpafg;nghUs; - mfj;jpizapay;

myF – **2** mfj;jpizapay;

myF – **3** fstpay;

myF – **4** tiutpay;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

myF – **5** fw;gpay;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	mfg;nghUspy; fsT epfo;Tfis khztHfSf;F czHj;Jjy;	3
CO-2	fsT epfo;Tfspd; topKiwfis khztu;fs; Ghpe;J nfhz;ldh;.	3
CO-3	gz;ila kf;fspd; fsT Kiwfis mwpe;J nfhz;ldh;.	2
CO-4	tiutpay; fstpd; ,Wjp vd;gjid czh;e;J nfhz;ldh;.	2
CO-5	,y;yw tho;Nt kdpj tho;it tsg;gLj;JfpwJ	2

ghlE}y;:

ek;gpafg;nghUs; - ehw;ftpuhrek;gp> fofg;gjpg;G> jpUney;Ntyp njd;dpe;jpa irt rpj;jhe;j E}w;gjpg;Gf; fofk;> jpUney;Ntyp

ghu;it E}y;fs;:

1. Rg;Gnul;bahu;> mfj;jpizf; nfhs;iffs;> ghup epiyak;> nrd;id.
2. ,sq;Fkudhu;> jkpou; tho;tpay; ,yf;fzk;> mkpo;jk; gjpg;gfk;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

jkpo;nkhop tuyhW

Programme	**: B.A.,**	**Course Code**	**: 18U3TAA03**
Semester	**: III**	**No.of hrs**	**: 5**
Course	**: Allied**	**No.of Credits**	**: 4**

myF – 1

nkhop mikg;Gk; tuyhWk; - nkhop tuyhw;Wr; rhd;Wfs; - njhy;jpuhtplk; nkhopAk; jkpOk; - jkpo;g; gpuhkpf; fy;ntl;Lfspd; nkhop.

myF – 2

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

njhy;fhg;gpaj; jkpo;> rq;ffyhj; jkpo;> rq;fk; kUtpa fhyj; jkpo; - gy;ytH - NrhoH - ehaf;fH - fhyj; jkpo;.

myF – 3

kuhl;baH fhyj; jkpo; - gj;njhd;gJ> ,Ugjhk; E}w;whz;Lj; jkpo; fy;ntl;Lj;jkpo; - jkpo; gpwnkhop fyg;G tuyhW.

myF – 4

jkpo;f; fpis nkhopfSk; tuyhWk; - jkpo; nrhw;nghUs; khw;w tuyhW – jkpo;r; nrhw;nwhlu; khw;w tuyhW – jkpo; tuptbt tuyhW.

myF – 5

jkpo; thptbt tuyhW - njhy;fhg;gpaH fhyk; - ,ilf;fhyk; vOj;Jr;rPHjpUj;jk; - tPukhKdptUk; nghpahUk; - th. nr. Foe;ijrhkp.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jpuhtpl nkhopfspy; jkpo; nkhopad; rpwg;Gf;fis mwpe;J nfhz;ldh;	8
CO-2	,ilf;fhy murh;fspd; tuyhw;NuhL jkpo; nkhopapd; Nkd;ikia mwpe;J nfhz;ldh;	2
CO-3	fhyj;jpw;F Vw;whw;Nghy; nkhop khWgl;l tpjj;ij mwpe;J nfhz;ldh;	8
CO-4	ciueilapy; gpw nkhopr;nrhw;fis fz;lwpa khzth;fSf;F nkhopngah;g;G gad;gl;lJ	8
CO-5	vOj;Jf;fs; Njhd;wpa Kiwia goq;fhy ,yf;fz ,yf;fpa Mrphpah;fis xg;gpl;L mwpe;jdh;.	2

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

ghlE}y;:

1. lhf;lu; R.rf;jpNty;> jkpo;nkhop tuyhW> kzpthrfu; gjpg;gfk;> nrd;id.

ghHit E}y;fs;:

1. **njh.ngh.kP** - jkpo;nkhop tuyhW> rHNthja ,yf;fpag; gz;iz> kJiu> 1977
2. **K. tujuhrd;** - nkhop tuyhW> ghhp epiyak;> nrd;id

jpwd;rhh; tpUg;gg;ghlk;
(,jopay;)

Programme	**: B.A.,**	**Course Code**	**: 18U3TAE02**
Semester	**: III**	**No.of hrs**	**: 5**
Course	**: ELECTIVE-IV**	**No.of Credits**	**: 4**

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

myF – 1 ,jopay; tpsf;fk; - kf;fs; njhlHG rhjdq;fs; - kf;fs;njhlh;Gf; fUtpfspy; gj;jphpf;iffs; - gj;jphpf;iffspd; gzpfs; - ,jopay; tpjpfs; - gj;jphpf;iffspd; nghWg;GfSk; flikfSk; - kf;fshl;rpapy; gj;jphpf;iffspd; gq;F.

myF – 2

nra;jpj;jhspd; Njhw;wk; - ,e;jpa ,jopay; - ,e;jpa tpLjiyg; Nghuhl;lj;jpy; ,jo;fspd; gq;F – jkpo; ,jo;fs;.

myF – 3

nra;jptiffs; - fsq;fs; - nra;jpahsHfs; - nra;jp Nrfhpg;G – nra;jpfs; vOJk;Kiw – Ngl;b – jiyg;G – jiyaq;fk; - gf;fmikg;G – nra;jp epWtdq;fs;.

myF – 4

,jopay; rl;lq;fs; - gj;jphpf;iff;fTd;rpy; - ,jo;fspd; Rje;jpuk; - ,jo;fspd; elj;ijawk; - ,d;iwa ,jopay; - eph;thf mikg;G.

myF – 5

,jo;fspd; gFg;Gk; mikg;Gk; - ,jo;fspd; ,lk;ngWtd – tpsk;guq;fs; - Gydha;T ,jo;fs; - er;R ,jo;fs;.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	,jopaypd; nghWg;GfisAk; flikfisAk; czh;e;J nfhz;ldh;.	8
CO-2	tpLjiyf; fhyj;jpy; Clfj;jpd; gq;fspg;ig Ghpe;Jnfhz;ldh.;	8
CO-3	nra;jpjhspd; tbtikg;G Kiwfis mwpe;Jnfhz;ldh;.	10
CO-4	,jo;fis elj;Jk; KiwfisAk; tiffisAk; njhpe;Jnfhz;ldh;.	2
CO-5	nra;jpjhspd; ,lk;ngWk; nra;jpKiwfs; ,jo;tiffs; mwpe;Jnfhz;ldh;.	10

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

ghlE}y;fs;:

kh.gh.FUrhkp - ,jopay; fiy> FU.Njd;nkhop>
117> rd;djpnjU> jpUr;nre;J}H – 628215.

ghh;it E}y;fs;:

Kidth; r.<];tud;

KidtH ,uh.rghgjp - ,jopay;> ghit gg;spNfrd;> 142>
[hdp[hd;fhd; rhiy> ,uhag;Ngl;il>
nrd;id – 600 014.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

mwptpay; jkpo;

Programme	**: B.A.,**	**Course Code**	**: 18U3TAE03**
Semester	**: III**	**No.of hrs**	**: 2**
Course	**: ELECTIVE-IV**	**No.of Credits**	**: 2**

myF – 1

mwptpay; nrhy;Yk; nghUSk; – jkpopy; ntspte;j mwptpay; Ma;Tfs; – fUtp tsu;r;rp – Ntshz;ikAfk; – njhopy;Afk; – fy;tpAfk;.

myF – 2

,yf;fz ,yf;fpaq;fspy; gjpthfpAs;s mwptpay; jfty;fs; – Ma;T tsu;r;rp – ju;f;fKiw – mwptpay; Kiw – mikg;G Kiw.

myF – 3

jkpo; ,yf;fpa ,yf;fzq;fspy; gjpthfpAs;s Nfhs;fs;> el;rj;jpuq;fs; – fy;tp tsu;r;rp – tpidtyp tsu;r;rp.

myF – 4

mZFKiw tsu;r;rp – mwptpay; jkpo; Mf;fk; – ,d;iwa epiy – topKiwfs;.

myF – 5

vOj;Jr; rPu;j;jpUj;jk; – Nehf;fk; – Jiztuptbtk; – mtru Njit

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	mwptpay; jkpopy; ntspte;j Ma;Tfs; gw;wp mwpe;J nfhz;ldh;.	8
CO-2	,yf;fz ,yf;fpaq;fspy; gjpthfpAs;s mwptpay; tsu;r;rp Kiwfis njhpe;J gadile;jdh;.	8

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

CO-3	Nfhs;fspd; ,af;fq;fNshL jkpo; jfty;fis xg;gpLjiy mwpe;Jnfhz;ldh;.	10
CO-4	mwptpay; jkpo; Mf;fk; mZFKiw tsu;r;rp mwpe;Jnfhz;ldh;	2
CO-5	vOj;J rPu;j;jpUj;jk; Jiz tuptbtq;fis fw;W gadiljy;.	10

ghlE}y; :

1. **lhf;lu; t.nr.Foe;ij rhkp** – mwptpay; jkpo;
   ghujp gjpg;gfk;>
   126/108 c];khd; rhiy>
   jpahfuha efu;> nrd;id – 600017
   miyg;Ngrp – 434025.

ghh;it E}y;fs;:

1. **F.tp. fpU\;z%h;j;jp** – mwptpaypd; tuyhW
   NguhrphpaH – jiytH
   jhtumwptpay; Jiw
   ghujpjhrd; gy;fiyf;fofk;
   jpUr;rp – 620024.
2. **khj;jis NrhK** – tpaf;f itf;Fk; jkpoh; mwptpay;
   jkpo;f;Fuy; gjpg;gfk;
   G/vz; 5> g/vz; 15>
   5tJ Kjd;ik rhiy> ,uhkypq;f efh;
   ciwa+h;> jpUr;rp - 620 003.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

Jiwrhu; tpUg;gg;ghlk;
rhiy ghJfhg;G tpjpfs;

Programme	**: B.A.,**	**Course Code**	**: 18U3TAN01**
Semester	**: III**	**No.of hrs**	**: 2**
Course	**: NMEC - IV**	**No.of Credits**	**: 2**

myF – 1

ghjrhhpfSf;fhd ghJfhg;G tpjpKiwfs; - kpjptz;b Xl;LNthUf;fhd tpjpfs; - nghJthd tpjpKiwfs;.

myF – 2

,Urf;fu thfdXl;bfs; - fhh; kw;Wk; fduf thfd Xl;bfs; ftdj;jpw;F – tOf;Fjypd; tiffs; - iriffs;.

myF – 3

thfdXl;Lehpd; jtwhd gof;ftof;fq;fs; - mDtgkpd;ik – ftdf;FiwT – mjpNtfk;.

myF – 4

jtwhf Ke;Jjy; - jtwhfj; jpUg;Gjy; - ,ilntspapd;wpg; gpd; njhluy; - thfdq;fis jtwhf epWj;Jjy;.

myF – 5

thfdj;ij jtwhf gpd;Nehf;fpr; nrYj;Jjy; - jtwhfr; re;jpg;ig flj;jy; - mjpfRikNaw;wy; - kiyg;gFjpapy; jtwhf nrYj;Jjy; - rhiy tpjpfis kPWjy;.

CO No.	Upon completion of this course, students will be able to	PSOs addressed

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

CO-1	Xl;Ldh;f;fhd ghJfhg;G tpjpfis mwpe;Jnfhz;ldh;.	8
CO-2	thfd tiffisAk; mjid gad;gLj;Jk; KiwfisAk; mwpe;Jnfhz;ldh;.	8
CO-3	thfd Xl;bfspd; tpjpKiwfis mwpjy;.	10
CO-4	thfdk; Xl;Lk; NghJ filg;gpbf;fNtz;ba tpjpKiwfis mwpjy;	2
CO-5	thfdk; Xl;Lk; NghJ filg;gpbf;fNtz;ba tpjpKiwfis mwpjy;.	10

ghlE}y;:

1. **fyit Kghuf;myp** – rhiytpjpfSk; ghJfhg;Gk;
   ePA+ nrQ;Rhp Gf; `T]; (gp) ypl;>
   41gp>rpl;Nfh ,z;l];bhpay;> nrd;id – 600098.

2. **r. ma;ahj;Jiu** – thfd tpgj;Jf;fisj; jtph;g;gJ vg;gb?
   ePA+ nrQ;Rhp Gf; `T]; (gp) ypl;>
   41gp>rpl;Nfh ,z;l];bhpay;> nrd;id – 600098.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

ehd;fhk; gUtk;

,yf;fzk; - lV

(Gwg;nghUs; ntz;ghkhiy)

Programme	**: B.A.,**	**Course Code**	**: 18U4TA05**
Semester	**: IV**	**No.of hrs**	**: 6**
Course	**: Core**	**No.of Credits**	**: 5**

myF – 1

Gwg;nghUs; ntz;ghkhiy ntl;rp> fue;ij

myF – 2

tQ;rp> fhQ;rp

myF – 3

nehr;rp> copiQ

myF – 4

Jk;ig> thif>

myF – 5

ghlhz;.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jkpohpd; Gw tho;f;ifiaf; fw;Wj;njspe;jdh;.	8
CO-2	tho;f;if epiyapy;yhjJ vd;gij czh;e;jdh;	8
CO-3	jkpohpd; tPuk; Nghh;Kiwfis jpwk;gl fw;wdh;.	10
CO-4	Nghhpy; ntw;wp ngw;wijf; nfhz;lhLk; Kiw gw;wp mwpe;J nfhz;ldh;	2
CO-5	Nghhpy; ntw;wp ngWk; Mz;kfdpd; fy;tp> tPuk;> nfhil> gz;ghL> Ml;rp Kiwg; gw;wp khzth;fs; njhpe;J nfhz;ldh;	10

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

ghlE}y;:

1. **Gwg;nghUs; ntz;ghkhiy** – Ia;adhhpjdhh;>
   fof ntspapL.
   jpUney;Ntyp njd;dpe;jpa irt rpj;jhe;j
   E}w;g;gjpg;G fofk;> jpUney;Ntyp.

ghu;it E}y;fs;:

1. Rg;Gnul;bahu;> mfj;jpizf; nfhs;iffs;> ghup epiyak;> nrd;id.
2. ,sq;Fkudhu;> jkpou; tho;tpay; ,yf;fzk;> mkpo;jk; gjpg;gfk;> nrd;id.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

nkhopngau;g;gpay;

Programme	**: B. A.,**	**Course Code**	**: 18U4TAS01**
Semester	**: IV**	**No.of hrs**	**: 5**
course	**: SKILL (SBEC)**	**No.of Credits**	**: 4**

myF -1

nkhopngau;g;gpidg; gw;wpa gy;tif tpsf;fq;fs; - %ynkhop> ,yf;Fnkhop gw;wpa fz;Nzhl;lk;> nkhopngau;g;gpd; jd;ik – jty;fis ntspapLk; jd;ik nkhopngau;g;gpd; Nehf;fk; - gad; - ,d;wpaikahik –cyf muq;f nkhopngau;g;gpd; ,d;iwa Kf;fpaj;Jtk; - nkhopngau;g;gpd; Njhw;wKk; tsu;r;rpAk; - Nkiyehl;L nkhopfspy; nkhopngau;g;G Kaw;rpfs; - jkpo;ehl;by; nkhopngau;g;G – tptpypa E}y; nkhopngau;g;G – Fwpg;gplj;jFe;j nkhopngau;g;ghsu;fs;

myF – 2

nkhopngau;g;G tiffs; - nrhy; Neu; nkhopngau;g;G – tpupthd nkhopngau;g;G KOikahd my;yJ rupepiy nkhopngau;g;G – gFjpepiy nkhopngau;g;G ek;gfepiy nkhopngau;g;G – RUf;fk; - jOty;- nkhopahf;fk;

myF – 3

nkhopngau;g;ghsu; jFjpfs; - ,Unkhop > gd;nkhop mwptpd; ,d;wpaikahik ,yf;F – nkhop mwptpd; $WfSk; kuGfSk;> gz;ghl;Lj; jhf;fk;> nkhopfs; gw;wpa mwpT – gpwJiwfspy; Mo;e;j gapw;rpAk; GyikAk; - %y E}yhrpupaUk; xj;j jpwd; - %y E}ypy; Njha;T – gilg;G kdk; - mwptpay; ghu;it.

myF – 4

nkhopngau;g;gpd; mbg;gilfs; - nkhopngau;g;Gf; nfhs;iffs; - epfud; nfhs;iffs; (Theory of Equivalence) ,aq;F epiy epfud;fs; (Dynamaic Equivalence) #oy; xj;jikT (Contexual consistency) ,tw;wpd; tpsf;fq;fs; nkhop ngau;g;G nghJthd rpf;fy;fs;. rpf;fy;fSf;fhd fhuzpfs; -

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

jkpo; nkhopf;Nf cupa rpf;fy;fs; - nrhy;Yk; nghUSk; - kuGr; nrhw;fs;- tof;Fr;nrhw;fs; - cwTKiwr; nrhw;fs; - nghUs;Nfhs; Fwpg;Gg; nghUs; - gonkhopfs;.

myF – 5

gilg;gpyf;fpaq;fis nkhopngau;f;Fk; Kiw – ftpnkhopngau;g;G – rpy jkpo; Mq;fpy nkhopngau;g;Gfis xg;GNehf;fy; - Gidfij nkhopngau;g;G – mwptpay; njhopy;El;g ,yf;fpaq;fis nkhop ngau;f;Fk; Kiw> Ml;rp Mtzq;fs; nkhopngau;j;jy

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	nkhopngau;g;gpd; mtrpaj;ij mwpe;Jnfz;ldu;.	8
CO-2	nkhopngau;g;gpd; Kf;fpaj;Jtj;ij mwpe;Jnfhz;ldu;	8
CO-3	gy Jiwfspy; nkhopngau;g;gpd; jhf;fk; gw;wp czu;e;Jnfhz;lu;.	10
CO-4	nkhopngau;g;G rpf;fSf;Fupa fhuzq;fis njhupe;Jnfhz;ldu;	2
CO-5	tof;fpy; ,Uf;Fk; nkhopngau;g;G Kiwfis mwpe;J nfhz;ldu;.	10

ghlE}y;:

1. **f. nry;yg;gd;** - mUl;nry;t kfhypq;f nkhopngau;g;G ikak;>
MCEB tshfk; cLkiyNuhL>
nghs;shr;rp -652003.

ghu;it E}y;fs;:

R.rz;KfNtyhAjk;> nkhopngau;g;gpay;> nrd;id> cyfj;jkpohuha;r;rp epWtdk;> 1985.

1. rp.rptrz;Kfk;. Nt.jahsd;. nkhopngau;g;gpay;> rptfq;if> md;dk; gjpg;gfk;. 1989.
2. NrJkzp kzpad;> nkhopngau;g;gpay;> Nfhl;ghLfSk;> cj;jpfSk;> Jiu nrz;gfk; ntspaPL 1990.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

3. nr.,uhN[];tup nkhopngau;g;gpay; Ma;T> kJiu ney;iy gjpg;gfk; 1992.
4. it.rr;rpjhde;jd;> xg;gpyf;fpak; Xu; mwpKfk; nkhopngau;g;Gg; gw;wp ,lk; ngw;Ws;s fl;Liufs; kl;Lk; - Mf;];Nghu;L Adptu;rpl;b gpu]; 1985.
5. fh.rptjk;gp> ,yf;fpaKk; fUj;JepiyAk; nkhopngau;g;Gg; gw;wpa fl;Liu kl;Lk; jkpo;g;Gj;jfhyak;. nrd;id 1990.
6. Kidtu; tsu;kjp nkhopngau;g;Gf;fiy (cyfj;jkpohuha;r;rp epWtdk;) jpUkfs; Gj;jf epiyak;> nrd;id.
7. A.Nida, The Theory and Practice of Translation.
8. A.Nida, Towards, A Science of Translating.
9. Theodra Savony, The Art of Translation

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

Nfhapw;fiyfs;

Programme	**: B.A.,**	**Course Code**	**: 18U4TAA04**
Semester	**: IV**	**No.of hrs**	**: 5**
Course	**: Allied**	**No.of Credits**	**: 4**

myF - 1

Nfhapw;fiyapd; Njhw;wKk; tsh;r;rpAk; – kutopghL – rq;ffhyf; Nfhapy;fSk; ,iwAUtq;fSk; - rq;ffhyf; fl;lf;fiy – rq;ffhy Xtpaf;fiy.

myF – 2

gy;yth; Nfhapy;fs; - kNfe;jputh;kd; Filtiuf; Nfhapy;fs; - kz;lfg;gl;L ,yr;rpjd; Filtiu – gy;yhtuk; - gQ;rghz;lt Filtiu – khky;yd; Filtiu – NfhNdhp kz;lgk; - tuf kz;lgk; - guNkRth; Mjpuhf kz;lgk; - ,uh[rpk;kd; Gypf; Fif - xw;iwf;fy; Nfhapy;fs; - fl;Lkhdf; Nfhapy;fs; - fhQ;rp ifyhrehjh; Nfhapy;fs;.

myF - 3

gpw;fhy ghz;bah; Nfhapy;fs; - gps;isahh;g;gl;b – jpUg;guq;Fd;wk; - rpj;jd;dthry; - FLkpahd;kiy – nfhLk;ghSh; %th;Nfhapy;fs; - fOFkiy Nrhoh;fhyf; Nfhapy;fs; - jQ;ir ngUTilahh; Nfhapy; - fq;ifnfhz;l NrhoGuk; Nfhapy; - jhuhRuk; IuhtNjRtuh; Nfhapy; - jphpGtdk; fk;gN`Rtuh; Nfhapy.;

myF – 4

tp[aefu ehaf;fh;fhyf; Nfhapy;fs; - gzpfs; - kPdhl;rp Re;jNuRtuh; Nfhapy; - jhbf;nfhk;G nrse;juuh[ngUkhs; Nfhapy; - NfhGuq;fs; - kz;lgq;fs; - jpUr;Rw;Wfs; - Nfhapw; fiyfs; - jpUtpohf;fs;.

myF – 5

jkpou; topghLfspy; jPkpjp - ehl;lhh; nja;tq;fSk; tiffSk; Fynja;t topghL - Nfhapy; jpUtpohf;fs;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Nfhapy; mikg;G fl;l mikg;G KiwfisAk; mwpe;Jf;nfhz;lu;.	8
CO-2	Filtiu Nfhapy; mikj;j gy;ytu;gspd; Nfhapy; mikg;G Kiwia mwpjdu;.	8
CO-3	ghz;bau; fhy Nfhapy; rpwg;Gfis njhupe;Jf; nfhz;ldu;	10
CO-4	tp[a efu muru;fspd; Nfhapy; mikg;G Kiwfis mwpjy;	2
CO-5	ehl;Lg;Gw Nfhapy; mikg;G mikg;G KiwfisAk; nja;t ,Ug;gpl KiwfisAk; topg;ghl;ilAk; mwpe;Jnfhz;ldu;.	10

ghl E}y;fs;:

1. ,uh. ehfrhkp> jkpoff; Nfhapw;fiyfs; - jkpo;ehLmuR njhy;nghUs; Ma;Tj; Jiw ntspaPL> nrd;id. 1976
2. mk;ig kzptz;zd>; jkpof Nfhapw;fiy tuyhW> n[. n[. gjpg;gfk; kJiu. 2005

ghu;it E}y;fs;:

1. Flthap ghyRg;gukzpak; -

kapiy rPdpNtq;flrhkp

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

rpj;jh; ,yf;fpak;

Programme	**: B.A.,**	**Course Code**	**: 18U4TAS02**
Semester	**: IV**	**No.of hrs**	**: 2**
Course	**: SBEC**	**No.of Credits**	**: 1**

myF - 1

rpj;jHfspd; rpwg;G - rpj;jHfspd; tpQ;Qhd Muha;r;rp - rpj;jHfspd; nfhs;if.

myF - 2

ghk;ghl;br; rpj;jH - ,ilf;fhl;Lr; rpj;jH - mfg;Nga;r; rpj;jH.

myF - 3

Fjk;igr; rpj;jH - fLntspr; rpj;jH - mfj;jpaH Qhdk; - mOfzpr; rpj;jH - nfhq;fzr; rpj;jH - thy;kPfh Qhdk;

myF - 4

fhfGRz;lH - rptthf;fpaH

myF - 5

Qhd ntl;bahd; - xsitahH Qhdf; Fws;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Qhdk; ngw;w rpj;ju;fspd; tuyhw;wpd; nfhs;ifisAk; mwpjy;.	4
CO-2	rpj;ju;fspd; jj;Jt fUj;Jf;fis mwpe;J nfhz;ldu;.	4
CO-3	Qhdk; ngw;w rpj;ju;fspd; tuyhw;wpd; nfhs;iffis mwpjy;.	1
CO-4	rpj;ju;fspd; tho;f;if Kiwfis gw;wp mwpjy;.	1
CO-5	rpj;ju;fspd; jj;Jt fUj;Jfis mwpe;J nfhz;ldu;.	4

ghlE}y;

1. **rhkp> rpjk;gudhH** - ‘rpj;jHfs; fz;l tpQ;Qhdk; jj;Jtk;’
jhkiu gg;spNf\d;]; (gp) ypl;>
41-gp> rpl;Nfh ,z;l];bhpay; v];Nll;>
mk;gj;J}H> nrd;id - 600 098.

ghHit E}y;fs;:

1. **=Njtehj];thkpfs;** - ‘gjpndl;L rpj;jHfspd; tho;Tk; thf;Fk;’
eHkjh gjpg;gfk;> 10> ehdh njU>
jp.efH> nrd;id - 600 017.

2. **ehQ;rpy; = tp\;Z** - ‘rpe;ijAs; ciwe;j rpj;jHfs;’

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

ypNah Gf; gpg;sp\H];> ne. 50> 1tJ

nkapd;NuhL> nrd;id - 35.

3. **M. fUzhepjp** - ‘rpj;jH ,yf;fpaq;fspy; r%fg; ghHit’

ghit gg;spNf\d;];> nrd;id - 600 014.

rpe;jidapay;

Programme	**: B.A.,**	**Course Code**	**: 18U4TAS03**
Semester	**: IV**	**No.of hrs**	**: 2**
Course	**: SBEC**	**No.of Credits**	**: 1**

myF – 1

rpe;jidapay; - tpsf;fk; - Nkiyehl;L rpe;jidahsh;fs; - rhf;fuB]; - mhp];lhl;by; - gpshl;Nlh – jkpopy; rpe;jidapay; tsh;e;j tuyhW – jpUts;Sth; rpe;jidfs; - rpj;jh;fspd; r%frpe;jidfs; - ts;syhh; rpe;jidfs;.

myF – 2

fhe;jpabfs; rpe;jidfs; - m`pk;ir – rkaf;Nfhl;ghL – ngz;fs; - rKjha xw;Wik – murpay;> nghUshjhu tpLjiy.

myF – 3

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

fhuy;khh;f;]; rpe;jidfs; - khh;f;rpaf; Nfhl;ghLfs; - mtw;wpd; top r%fnghUshjhu khw;wq;fs;.

myF – 4

mk;Ngj;fhh; rpe;jidfs; - mk;Ngj;fhhpd; mDgtq;fSk; mtw;wpd; top cUthd rpe;jidfs; - kjk;> rhjp gw;wpa rpe;jidfs; - murpay; mikg;G rl;lk; ,aw;wypy; mthpd; gq;F.

myF – 5

nghpahh; kw;Wk; mz;zh rpe;jidfs; - kjk;> flTs;> nkhop> rhjp> ngz;zbik> rKjha Vw;wj;jho;T gw;wp nghpahh;> mz;zh MfpNahhpd; rpe;jidfSk; nray;ghLfSk;

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	rKjha khw;wjpw;F rpe;jidahsu;fspd; gq;fspg;gpid mwpe;Jnfhz;ldu;	5
CO-2	fhe;jpabfspd; mwf;Nfhl;ghl;bd; top r%f nghUshjhu khw;wij czu;e;J nfhz;ldu;.	5
CO-3	khu;f;rpa Nfhl;ghl;bd; top r%f nghUshjhu khw;wij czu;e;J nfhz;ldu;	5
CO-4	murpay; mikg;gpy; mk;Ngj;fhupd; gq;fspg;ig czu;e;J nfhz;ldu;.	5
CO-5	nghpahu; mz;zh Nghd;wtu;fspd; jj;Jt fUj;Jfis mwpe;J nfhz;ldu;.	5

ghh;it E}y;fs;;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

1.fhuy;khf;]; - nt.rhkpehj rh;kh
2.ts;syhh; fz;l xUikg;ghL – kh.ngh.rp.
3.nghpahhpd; rpe;jidfs; (%d;W njhFjpfs;) – Nt.MidKj;J> ijay;ehafp gjpg;gfk;> GJit.
4.mwpQH mz;zhtpd; tho;Tk; thf;Fk; - rp.vk;.V.ghpksk;
5.rj;jpaNrhjid – fhe;jpabfs;

%d;whk; gUtk;
,yf;fzk; - lll
(ek;gpafg;nghUs;)

Programme	**: B.A.,**	**Course Code**	**: 18U3TA04**
Semester	**: III**	**No.of hrs**	**: 6**
Course	**: Core**	**No.of Credits**	**: 4**

CO No.	Upon completion of this course, students will be able to	PSOs addressed

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

CO-1	fstpd; Kiwfis khzth;fs; mwpe;J nfhs;Sjy;.	2
CO-2	fsT epfo;Tfspd; topKiwfis khztu;fs; Ghpe;J nfhz;ldh	3
CO-3	gz;ila kf;fspd; fsT Kiwfis mwpe;J nfhz;ldh;.	2
CO-4	tiutpay; fstpd; ,Wjp vd;gjid czh;e;J nfhz;ldh;.	3
CO-5	,y;yw tho;Nt kdpj tho;it tsg;gLj;JfpwJ	3

;.

myF – **1** ek;gpafg;nghUs; - mfj;jpizapay;

myF – **2** mfj;jpizapay;

myF – **3** fstpay;

myF – **4** tiutpay;

myF – **5** fw;gpay

jkpo;nkhop tuyhW

Programme : B.A., **Course Code : 18U3TAA03**
Semester : III **No.of hrs : 5**
Course : Allied **No.of Credits : 4**

myF – **1**

nkhop mikg;Gk; tuyhWk; - nkhop tuyhw;Wr; rhd;Wfs; - njhy;jpuhtplk; nkhopAk; jkpOk; - jkpo;g; gpuhkpf; fy;ntl;Lfspd; nkhop.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

myF – 2

njhy;fhg;gpaj; jkpo;> rq;ffyhj; jkpo;> rq;fk; kUtpa fhyj; jkpo; - gy;ytH - NrhoH - ehaf;fH - fhyj; jkpo;.

myF – 3

kuhl;baH fhyj; jkpo; - gj;njhd;gJ> ,Ugjhk; E}w;whz;Lj; jkpo; fy;ntl;Lj;jkpo; - jkpo; gpwnkhop fyg;G tuyhW.

myF – 4

jkpo;f; fpis nkhopfSk; tuyhWk; - jkpo; nrhw;nghUs; khw;w tuyhW – jkpo;r; nrhw;nwhlu; khw;w tuyhW – jkpo; tuptbt tuyhW.

myF – 5

jkpo; thptbt tuyhW - njhy;fhg;gpaH fhyk; - ,ilf;fhyk; vOj;Jr;rPHjpUj;jk; - tPukhKdptUk; nghpahUk; - th. nr. Foe;ijrhkp.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jpuhtpl nkhopfspy; jkpo; nkhopad; rpwg;Gf;fis mwpe;J nfhz;ldh;	5
CO-2	,ilf;fhy murh;fspd; tuyhw;NuhL jkpo; nkhopapd; Nkd;ikia mwpe;J nfhz;ldh;	1
CO-3	fhyj;jpw;F Vw;whw;Nghy; nkhop khWgl;l tpjj;ij mwpe;J nfhz;ldh;	5
CO-4	ciueilapy; gpw nkhopr;nrhw;fis fz;lwpa khzth;fSf;F nkhopngah;g;G gad;gl;lJ	5
CO-5	jkpopd; vOj;J rPh;jpUj;jk; gw;wp mwpe;J nfhz;ldh;	1

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

jpwd;rhh; tpUg;gg;ghlk; (,jopay;)

Programme : B.A., **Course Code : 18U3TAE02**
Semester : III **No.of hrs : 5**

Course : ELECTIVE-IV **No.of Credits : 4**

myF – **1** ,jopay; tpsf;fk; - kf;fs; njhlHG rhjdq;fs; - kf;fs;njhlh;Gf; fUtpfspy; gj;jphpf;iffs; - gj;jphpf;iffspd; gzpfs; - ,jopay; tpjpfs; - gj;jphpf;iffspd; nghWg;GfSk; flikfSk; - kf;fshl;rpapy; gj;jphpf;iffspd; gq;F.

myF – **2**

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

nra;jpj;jhspd; Njhw;wk; - ,e;jpa ,jopay; - ,e;jpa tpLjiyg; Nghuhl;lj;jpy; ,jo;fspd; gq;F – jkpo; ,jo;fs;.

myF – 3

nra;jptiffs; - fsq;fs; - nra;jpahsHfs; - nra;jp Nrfhpg;G – nra;jpfs; vOJk;Kiw – Ngl;b – jiyg;G – jiyaq;fk; - gf;fmikg;G – nra;jp epWtdq;fs;.

myF – 4

,jopay; rl;lq;fs; - gj;jphpf;iff;fTd;rpy; - ,jo;fspd; Rje;jpuk; - ,jo;fspd; elj;ijawk; - ,d;iwa ,jopay; - eph;thf mikg;G.

myF – 5

,jo;fspd; gFg;Gk; mikg;Gk; - ,jo;fspd; ,lk;ngWtd – tpsk;guq;fs; - Gydha;T ,jo;fs; - er;R ,jo;fs;.

ghlE}y;fs;:

kh.gh.FUrhkp - ,jopay; fiy> FU.Njd;nkhop>
117> rd;djpnjU> jpUr;nre;J}H – 628215.

ghh;it E}y;fs;:

Kidth; r.<];tud;
KidtH ,uh.rghgjp - ,jopay;> ghit gg;spNfrd;> 142>
[hdp[hd;fhd; rhiy> ,uhag;Ngl;il>

CO-1	,jopaypd; nghWg;GfisAk; flikfisAk; czh;e;J nfhz;ldh;.	10
CO-2	tpLjiyf; fhyj;jpy; Clfj;jpd; gq;fspg;ig Ghpe;Jnfhz;ldh.;	10
CO-3	nra;jpjhspd; tbtikg;G Kiwfis mwpe;Jnfhz;ldh;.	10
CO-4	,jo;fis elj;Jk; KiwfisAk; tiffisAk; njhpe;Jnfhz;ldh;.	10
CO-5	nra;jpjhspd; ,lk;ngWk; nra;jpKiwfs; ,jo;tiffs; mwpe;Jnfhz;ldh;.	10

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)
nrd;id – 600 014.

mwptpay; jkpo;

Programme	**: B.A.,**	**Course Code**	**: 18U3TAE03**
Semester	**: III**	**No.of hrs**	**: 2**

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

Course : ELECTIVE-IV No.of Credits : 2;.

myF – **1**

mwptpay; nrhy;Yk; nghUSk; – jkpopy; ntspte;j mwptpay; Ma;Tfs; – fUtp tsu;r;rp – Ntshz;ikAfk; – njhopy;Afk; – fy;tpAfk;.

myF – **2**

,yf;fz ,yf;fpaq;fspy; gjpthfpAs;s mwptpay; jfty;fs; – Ma;T tsu;r;rp – ju;f;fKiw – mwptpay; Kiw – mikg;G Kiw.

myF – **3**

jkpo; ,yf;fpa ,yf;fzq;fspy; gjpthfpAs;s Nfhs;fs;> el;rj;jpuq;fs; – fy;tp tsu;r;rp – tpidtyp tsu;r;rp.

myF – **4**

mZFKiw tsu;r;rp – mwptpay; jkpo; Mf;fk; – ,d;iwa epiy – topKiwfs;.

myF – **5**

vOj;Jr; rPu;j;jpUj;jk; – Nehf;fk; – Jiztuptbtk; – mtru Njit.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	mwptpay; jkpopy; ntspte;j Ma;Tfs; gw;wp mwpe;J nfhz;ldh;.	9
CO-2	,yf;fz ,yf;fpaq;fspy; gjpthfpAs;s mwptpay; tsu;r;rp Kiwfis njhpe;J gadile;jdh;.	9
CO-3	Nfhs;fspd; ,af;fq;fNshL jkpo; jfty;fis xg;gpLjiy mwpe;Jnfhz;ldh;.	9
CO-4	mwptpay; jkpo; Mf;fk; mZFKiw tsu;r;rp mwpe;Jnfhz;ldh;	9
CO-5	vOj;J rPu;j;jpUj;jk; Jiz tuptbtq;fis fw;W gadiljy;.	9

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

ghlE}y; :

1. **lhf;lu; t.nr.Foe;ij rhkp** – mwptpay; jkpo;
   ghujp gjpg;gfk;>
   126/108 c];khd; rhiy>
   jpahfuha efu;> nrd;id – 600017
   miyg;Ngrp – 434025.

ghh;it E}y;fs;:

1. **F.tp. fpU\;z%h;j;jp** – mwptpaypd; tuyhW
   NguhrphpaH – jiytH
   jhtumwptpay; Jiw
   ghujpjhrd; gy;fiyf;fofk;
   jpUr;rp – 620024.
2. **khj;jis NrhK** – tpaf;f itf;Fk; jkpoh; mwptpay;
   jkpo;f;Fuy; gjpg;gfk;
   G/vz; 5> g/vz; 15>
   5tJ Kjd;ik rhiy> ,uhkypq;f efh;
   ciwa+h;> jpUr;rp - 620 003.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

Jiwrhu; tpUg;gg;ghlk;
rhiy ghJfhg;G tpjpfs;

Programme	**: B.A.,**	**Course Code**	**: 18U3TAN01**
Semester	**: III**	**No.of hrs**	**: 2**
Course	**: NMEC - IV**	**No.of Credits**	**: 2**

myF – 1

ghjrhhpfSf;fhd ghJfhg;G tpjpKiwfs; - kpjptz;b Xl;LNthUf;fhd tpjpfs; - nghJthd tpjpKiwfs;.

myF – 2

,Urf;fu thfdXl;bfs; - fhh; kw;Wk; fduf thfd Xl;bfs; ftdj;jpw;F – tOf;Fjypd; tiffs; - iriffs;.

myF – 3

thfdXl;Lehpd; jtwhd gof;ftof;fq;fs; - mDtgkpd;ik – ftdf;FiwT – mjpNtfk;.

myF – 4

jtwhf Ke;Jjy; - jtwhfj; jpUg;Gjy; - ,ilntspapd;wpg; gpd; njhluy; - thfdq;fis jtwhf epWj;Jjy;.

myF – 5

thfdj;ij jtwhf gpd;Nehf;fpr; nrYj;Jjy; - jtwhfr; re;jpg;ig flj;jy; - mjpfRikNaw;wy; - kiyg;gFjpapy; jtwhf nrYj;Jjy; - rhiy tpjpfis kPWjy;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Xl;Ldh;f;fhd ghJfhg;G tpjpfis mwpe;Jnfhz;ldh;.	12
CO-2	thfd tiffisAk; mjid gad;gLj;Jk; KiwfisAk; mwpe;Jnfhz;ldh;.	11
CO-3	thfd Xl;bfspd; tpjpKiwfis mwpjy;.	12
CO-4	thfdk; Xl;Lk; NghJ filg;gpbf;fNtz;ba tpjpKiwfis mwpjy;.	12
CO-5	thfdk; Xl;Lk; NghJ filg;gpbf;fNtz;ba tpjpKiwfis mwpjy;.	12

ghlE}y;:

1. **fyit Kghuf;myp** – rhiytpjpfSk; ghJfhg;Gk;
   ePA+ nrQ;Rhp Gf; `T]; (gp) ypl;>
   41gp>rpl;Nfh ,z;l];bhpay;> nrd;id – 600098.

2. **r. ma;ahj;Jiu** – thfd tpgj;Jf;fisj; jtph;g;gJ vg;gb?
   ePA+ nrQ;Rhp Gf; `T]; (gp) ypl;>
   41gp>rpl;Nfh ,z;l];bhpay;> nrd;id – 600098.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

ehd;fhk; gUtk;

,yf;fzk; - lV

(Gwg;nghUs; ntz;ghkhiy)

Programme	**: B.A.,**	**Course Code**	**: 18U4TA05**
Semester	**: IV**	**No.of hrs**	**: 6**
Course	**: Core**	**No.of Credits**	**: 5**

.

myF – **1**

Gwg;nghUs; ntz;ghkhiy ntl;rp> fue;ij

myF – **2**

tQ;rp> fhQ;rp

myF – **3**

nehr;rp> copiQ

myF – **4**

Jk;ig> thif>

myF – **5**

ghlhz;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	jkpohpd; Gw tho;f;ifiaf; fw;Wj;njspe;jdh	1
CO-2	jkpohpd; tPuk; Nghh;Kiwfis jpwk;gl fw;wdh;.	3
CO-3	tho;f;if epiyapy;yhjJ vd;gij czh;e;jdh;.	3

.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

CO-4	jkpohpd; tPuk; Nghh;Kiwfis jpwk;gl fw;wdh;.	3
CO-5	ghlhz; Nghh;Kiwfis jpwk;gl fw;wdh;.	3

nkhopngau;g;gpay;

Programme : B. A., **Course Code : 18U4TAS01**

Semester : IV **No.of hrs : 5**

course : SKILL (SBEC) **No.of Credits : 4**

Nehf;fk; : nkhopngau;g;gpd; ,d;wpaikahik mwpjy;.

Nehf;fk;; : nkhopngau;g;gpd; tiffis czu;j;Jjy;.

Nehf;fk; : nkhopngau;g;ghsu;f;Fupa jFjpfis ciuj;jy;.

Nehf;fk; : nkhopngau;g;gpy; Vw;gLk; rpf;fy;fisf; $Wjy;.

Nehf;fk; : ,yf;fpa nkhopngau;g;gpd; mtrpaj;ij mwpar;nra;jy;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

myF -1

nkhopngau;g;gpidg; gw;wpa gy;tif tpsf;fq;fs; - %ynkhop> ,yf;Fnkhop gw;wpa fz;Nzhl;lk;> nkhopngau;g;gpd; jd;ik – jty;fis ntspapLk; jd;ik nkhopngau;g;gpd; Nehf;fk; - gad; - ,d;wpaikahik –cyf muq;f nkhopngau;g;gpd; ,d;iwa Kf;fpaj;Jtk; - nkhopngau;g;gpd; Njhw;wKk; tsu;r;rpAk; - Nkiyehl;L nkhopfspy; nkhopngau;g;G Kaw;rpfs; - jkpo;ehl;by; nkhopngau;g;G – tptpypa E}y; nkhopngau;g;G – Fwpg;gplj;jFe;j nkhopngau;g;ghsu;fs;

myF – 2

nkhopngau;g;G tiffs; - nrhy; Neu; nkhopngau;g;G – tpupthd nkhopngau;g;G KOikahd my;yJ rupepiy nkhopngau;g;G – gFjpepiy nkhopngau;g;G ek;gfepiy nkhopngau;g;G – RUf;fk; - jOty;- nkhopahf;fk;

myF – 3

nkhopngau;g;ghsu; jFjpfs; - ,Unkhop > gd;nkhop mwptpd; ,d;wpaikahik ,yf;F – nkhop mwptpd; $WfSk; kuGfSk;> gz;ghl;Lj; jhf;fk;> nkhopfs; gw;wpa mwpT – gpwJiwfspy; Mo;e;j gapw;rpAk; GyikAk; - %y E}yhrpupaUk; xj;j jpwd; - %y E}ypy; Njha;T – gilg;G kdk; - mwptpay; ghu;it.

myF – 4

nkhopngau;g;gpd; mbg;gilfs; - nkhopngau;g;Gf; nfhs;iffs; - epfud; nfhs;iffs; (Theory of Equivalence) ,aq;F epiy epfud;fs; (Dynamaic Equivalence) #oy; xj;jikT (Contexual consistency) ,tw;wpd; tpsf;fq;fs; nkhop ngau;g;G nghJthd rpf;fy;fs;. rpf;fy;fSf;fhd fhuzpfs; - jkpo; nkhopf;Nf cupay;fs; -

nrhy;Yk; nghUSk; - kuGr; nrhw;fs;- tof;Fr;nrhw;fs; - cwTKiwr; nrhw;fs; - nghUs;Nfhs; Fwpg;Gg; nghUs; - gonkhopfs;.

myF – 5

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

gilg;gpyf;fpaq;fis nkhopngau;f;Fk; Kiw – ftpnkhopngau;g;G – rpy jkpo; Mq;fpy nkhopngau;g;Gfis xg;GNehf;fy; - Gidfij nkhopngau;g;G – mwptpay; njhopy;El;g ,yf;fpaq;fis nkhop ngau;f;Fk; Kiw> Ml;rp Mtzq;fs;nkhopngau;j;jy;.

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	nkhopngau;g;gpd; mtrpaj;ij mwpe;Jnfz;ldu;.	2
CO-2	nkhopngau;g;gpd; Kf;fpaj;Jtj;ij mwpe;Jnfhz;ldu;.	5
CO-3	gy Jiwfspy; nkhopngau;g;gpd; jhf;fk; gw;wp czu;e;Jnfhz;lu;.	8
CO-4	nkhopngau;g;G rpf;fSf;Fupa fhuzfis njhupe;Jnfhz;ldu;.	8
CO-5	tof;fpy; ,Uf;Fk; nkhopngau;g;G Kiwfis mwpe;J nfhz;ldu;.	8

ghlE}y;:

1. **f. nry;yg;gd;** - mUl;nry;t kfhypq;f nkhopngau;g;G ikak;>

MCEB tshfk; cLkiyNuhL>
nghs;shr;rp -652003.

ghu;it E}y;fs;:

1. R.rz;KfNtyhAjk;> nkhopngau;g;gpay;> nrd;id> cyfj;jkpohuha;r;rp epWtdk;> 1985.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

2. rp.rptrz;Kfk;. Nt.jahsd;. nkhopngau;g;gpay;> rptfq;if> md;dk; gjpg;gfk;. 1989.
3. NrJkzp kzpad;> nkhopngau;g;gpay;> Nfhl;ghLfSk;> cj;jpfSk;> Jiu nrz;gfk; ntspaPL 1990.
4. nr.,uhN[];tup nkhopngau;g;gpay; Ma;T> kJiu ney;iy gjpg;gfk; 1992.
5. it.rr;rpjhde;jd;> xg;gpyf;fpak; Xu; mwpKfk; nkhopngau;g;Gg; gw;wp ,lk; ngw;Ws;s fl;Liufs; kl;Lk; - Mf;];Nghu;L Adptu;rpl;b gpu]; 1985.
6. fh.rptjk;gp> ,yf;fpaKk; fUj;JepiyAk; nkhopngau;g;Gg; gw;wpa fl;Liu kl;Lk; jkpo;g;Gj;jfhyak;. nrd;id 1990.
7. Kidtu; tsu;kjp nkhopngau;g;Gf;fiy (cyfj;jkpohuha;r;rp epWtdk;) jpUkfs; Gj;jf epiyak;> nrd;id.
8. A.Nida, The Theory and Practice of Translation.
9. A.Nida, Towards, A Science of Translating.
10. Theodra Savony, The Art of Translation

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

Nfhapw;fiyfs;

Programme	**: B.A.,**	**Course Code**	**: 18U4TAA04**
Semester	**: IV**	**No.of hrs**	**: 5**
Course	**: Allied**	**No.of Credits**	**: 4**

Nehf;fk; : Nfhapy;fspd; Njhw;wk; mjd; tiffis mwpjy;.

Nehf;fk; : gy;ytu; fhy Nfhapy; mikg;G Kiwfis czu;j;Jjy;.

Nehf;fk; : ghz;bau; fhy Nfhapy; mikg;G Kiwfis czu;j;Jjy;.

Nehf;fk; : tp[adfug;NguuRfspd; Nfhapy; mikg;G Kiwfis czu;j;Jjy;.

Nehf;fk; : ehl;LGw Nfhapy; mikg;G Kiwfis topghL Kiwfis czu;j;Jjy;.

myF - 1

Nfhapw;fiyapd; Njhw;wKk; tsh;r;rpAk; – kutopghL – rq;ffhyf; Nfhapy;fSk; ,iwAUtq;fSk; - rq;ffhyf; fl;lf;fiy – rq;ffhy Xtpaf;fiy.

myF – 2

gy;yth; Nfhapy;fs; - kNfe;jputh;kd; Filtiuf; Nfhapy;fs; - kz;lfg;gl;L ,yr;rpjd; Filtiu – gy;yhtuk; - gQ;rghz;lt Filtiu – khky;yd; Filtiu – NfhNdhp kz;lgk; - tuf kz;lgk; - guNkRth; Mjpuhf kz;lgk; - ,uh[rpk;kd; Gypf; Fif - xw;iwf;fy; Nfhapy;fs; - fl;Lkhdf; Nfhapy;fs; - fhQ;rp ifyhrehjh; Nfhapy;fs;.

myF - 3

gpw;fhy ghz;bah; Nfhapy;fs; - gps;isahh;g;gl;b – jpUg;guq;Fd;wk; - rpj;jd;dthry; - FLkpahd;kiy – nfhLk;ghSh; %th;Nfhapy;fs; - fOFkiy Nrhoh;fhyf; Nfhapy;fs; - jQ;ir

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

ngUTilahh; Nfhapy; - fq;ifnfhz;l NrhoGuk; Nfhapy; - jhuhRuk; IuhtNjRtuh; Nfhapy; -

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Nfhapy; mikg;G fl;l mikg;G KiwfisAk; mwpe;Jf;nfhz;lu;.	6

jphpGtdk; fk;gN`Rtuh; Nfhapy.;

myF – 4

tp[aefu ehaf;fh;fhyf; Nfhapy;fs; - gzpfs; - kPdhl;rp Re;jNuRtuh; Nfhapy; - jhbf;nfhk;G nrse;juuh[ngUkhs; Nfhapy; - NfhGuq;fs; - kz;lgq;fs; - jpUr;Rw;Wfs; - Nfhapw; fiyfs; - jpUtpohf;fs;.

myF – 5

jkpou; topghLfspy; jPkpjp - ehl;lhh; nja;tq;fSk; tiffSk; Fynja;t topghL - Nfhapy; jpUtpohf;fs;.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

CO-2	Filtiu Nfhapy; mikj;j gy;ytu;gspd; Nfhapy; mikg;G Kiwia mwpjdu;.	3
CO-3	ghz;bau; fhy Nfhapy; rpwg;Gfis njhupe;Jf; nfhz;ldu;.	4
CO-4	tp[a efu muru;fspd; Nfhapy; mikg;G Kiwfis mwpjy;.	3
CO-5	ehl;Lg;Gw Nfhapy; mikg;G mikg;G KiwfisAk; nja;t ,Ug;gpl KiwfisAk; topg;ghl;ilAk; mwpe;Jnfhz;ldu;.	3

ghl E}y;fs;:

3. ,uh. ehfrhkp> jkpoff; Nfhapw;fiyfs; - jkpo;ehLmuR njhy;nghUs; Ma;Tj; Jiw ntspaPL> nrd;id. 1976
4. mk;ig kzptz;zd>; jkpof Nfhapw;fiy tuyhW> n[. n[. gjpg;gfk; kJiu. 2005

ghu;it E}y;fs;:

1. Flthap ghyRg;gukzpak; -
2. kapiy rPdpNtq;flrhkp

rpj;jh; ,yf;fpak;

Programme	**: B.A.,**	**Course Code**	**: 18U4TAS02**
Semester	**: IV**	**No.of hrs**	**: 2**
Course	**: SBEC**	**No.of Credits**	**: 1**

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

Nehf;fk; : rpj;ju;fisg; gw;wp mwpjy;.

Nehf;fk; : jdpj;Jtk; tha;e;j rpj;ju;fs; tho;f;if Kiwfis czu;j;Jjy;.

Nehf;fk; : rpj;ju;fspd; jj;Jt fUj;Jfis mwpjy;

Nehf;fk; : rpj;ju;fspd; jj;Jt fUj;Jfis mwpjy;

Nehf;fk; : ngz;ghy; rpj;ju;fspd; fUj;JfisAk; mwpjy;.

myF - 1

rpj;jHfspd; rpwg;G - rpj;jHfspd; tpQ;Qhd Muha;r;rp - rpj;jHfspd; nfhs;if.

myF - 2

ghk;ghl;br; rpj;jH - ,ilf;fhl;Lr; rpj;jH - mfg;Nga;r; rpj;jH.

myF - 3

Fjk;igr; rpj;jH - fLntspr; rpj;jH - mfj;jpaH Qhdk; - mOfzpr; rpj;jH - nfhq;fzr; rpj;jH - thy;kPfh Qhdk;

myF - 4

fhfGRz;lH - rptthf;fpaH

myF - 5

Qhd ntl;bahd; - xsitahH Qhdf; Fws;.

	Upon completion of this course, students will be able to	**PSOs addressed**
CO-1	Qhdk; ngw;w rpj;ju;fspd; tuyhw;wpd; nfhs;ifisAk; mwpjy	4
CO-2	rpj;ju;fspd; jj;Jt fUj;Jf;fis mwpe;J nfhz;ldu;.	4
CO-3	Qhdk; ngw;w rpj;ju;fspd; tuyhw;wpd; nfhs;iffaisAk; mwpjy	4
CO-4	rpj;ju;fspd; tho;f;if Kiwfis gw;wp mwpjy;.	4
CO-5	R4pj;ju;fspd; jj;Jt fUj;Jfis mwpe;J nfhz;ldu;.	4

ghlE}y;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

2. **rhkp> rpjk;gudhH** - ‘rpj;jHfs; fz;l tpQ;Qhdk; jj;Jtk;’

jhkiu gg;spNf\d;]; (gp) ypl;>

41-gp> rpl;Nfh ,z;l];bhpay; v];Nll;>

mk;gj;J}H> nrd;id - 600 098.

ghHit E}y;fs;:

1. **=Njtehj];thkpfs;** - ‘gjpndl;L rpj;jHfspd; tho;Tk; thf;Fk;’
eHkjh gjpg;gfk;> 10> ehdh njU>
jp.efH> nrd;id - 600 017.

2. **ehQ;rpy; = tp\;Z** - ‘rpe;ijAs; ciwe;j rpj;jHfs;’
ypNah Gf; gpg;sp\H];> ne. 50> 1tJ
nkapd;NuhL> nrd;id - 35.

3. **M. fUzhepjp** - ‘rpj;jH ,yf;fpaq;fspy; r%fg; ghHit’
ghit gg;spNf\d;];> nrd;id - 600 014.

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

rpe;jidapay;

Programme	**: B.A.,**	**Course Code**	**: 18U4TAS03**
Semester	**: IV**	**No.of hrs**	**: 2**
Course	**: SBEC**	**No.of Credits**	**: 1**

Nehf;fk; : rpe;jidahsu;fs; Fwpj;J mwpjy;.

Nehf;fk; : fhe;jpabfspd; mwf;fUj;Jfis mwpjy;.

Nehf;fk; : fhuy;khu;f;]; Nfhl;ghl;il mwpjy;

Nehf;fk; : mk;Ngj;fhu; murpay; rpe;jijfis mwpjy;.

Nehf;fk; : ngupahupd; rKjhaf;fUj;Jfis czu;j;Jjy;

myF – 1

rpe;jidapay; - tpsf;fk; - Nkiyehl;L rpe;jidahsh;fs; - rhf;fuB]; - mhp];lhl;by; - gpshl;Nlh – jkpopy; rpe;jidapay; tsh;e;j tuyhW – jpUts;Sth; rpe;jidfs; - rpj;jh;fspd; r%frpe;jidfs; - ts;syhh; rpe;jidfs;.

myF – 2

fhe;jpabfs; rpe;jidfs; - m`pk;ir – rkaf;Nfhl;ghL – ngz;fs; - rKjha xw;Wik – murpay;> nghUshjhu tpLjiy.

myF – 3

fhuy;khh;f;]; rpe;jidfs; - khh;f;rpaf; Nfhl;ghLfs; - mtw;wpd; top r%fnghUshjhu khw;wq;fs;.

myF – 4

mk;Ngj;fhh; rpe;jidfs; - mk;Ngj;fhhpd; mDgtq;fSk; mtw;wpd; top cUthd rpe;jidfs; - kjk;> rhjp gw;wpa rpe;jidfs; - murpay; mikg;G rl;lk; ,aw;wypy; mthpd; gq;F.

myF – 5

nghpahh; kw;Wk; mz;zh rpe;jidfs; - kjk;> flTs;> nkhop> rhjp> ngz;zbik> rKjha Vw;wj;jho;T gw;wp nghpahh;> mz;zh MfpNahhpd; rpe;jidfSk; nray;ghLfSk;

nry;tk; fiy kw;Wk; mwptpay; fy;Y}up> (jd;dhl;rp) ehkf;fy;-3
jkpo;j; Jiw
,sk; fiy jkpo; (gp.>v)

;

	Upon completion of this course, students will be able to	**PSOs addressed**
CO-1	rKjha khw;wjpw;F rpe;jidahsu;fspd; gq;fspg;gpid mwpe;Jnfhz;ldu;.	**11**
CO-2	fhe;jpabfspd; mwf;Nfhl;ghl;bd; top r%f nghUshjhu khw;wij czu;e;J nfhz;ldu;.	**5**
CO-3	khu;f;rpa Nfhl;ghl;bd; top r%f nghUshjhu khw;wij czu;e;J nfhz;ldu;	**5**
CO-4	murpay; mikg;gpy; mk;Ngj;fhupd; gq;fspg;ig czu;e;J nfhz;ldu;.	**5**
CO-5	nghpahu; mz;zh Nghd;wtu;fspd; jj;Jt fUj;Jfis mwpe;J nfhz;ldu;	**5**

ghh;it E}y;fs;;.

fhuy;khf;]; - nt.rhkpehj rh;kh

2.ts;syhh; fz;l xUikg;ghL – kh.ngh.rp.

3.nghpahhpd; rpe;jidfs; (%d;W njhFjpfs;) – Nt.MidKj;J> ijay;ehafp gjpg;gfk;> GJit.

4.mwpQH mz;zhtpd; tho;Tk; thf;Fk; - rp.vk;.V.ghpksk

5.rj;jpaNrhjid – fhe;jpabfs;

SELVAMM ARTS & SCIENCE COLLEGE, NAMAKKAL

(AUTONOMOUS)

Nationally Reaccredited at the Highest Grade "A" by NAAC

Affiliated to Periyar University, (Salem)-11

B.Sc., DEGREE

BRANCH IV – CHEMISTRY

REGULATIONS AND SYLLABUS

(Choice Based Credit System)

FOR

Students Admitted During

(2018-2019 and onwards)

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

Vision

To enrich the chemistry knowledge of young minds for their careers.

Mission

To impart modern educational technology in lecture and laboratory courses that could help the students to grasp the concepts in chemistry and apply them in their careers.

Programme Outcomes (UG)

PO.No	Upon completion of B.Sc Degree programme , the graduates will be able to
PO 1	**Communicate Effectively** - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.
PO 2	**Environment Concern** - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.
PO 3	**Ethical and Healthy Practice** - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.
PO 4	**Social Consciousness** - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.
PO 5	**Subject Specialist -** Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor
PO 6	**Role Model -** Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

U.G – Hrs. / CREDITS DETAILS (2018 – 2019 BATCH)

Sem	Part	Paper code	Title of the course	Hrs.	Credits	Marks	Total Hrs. / Sem
I	I	18U1FTA01	Language – I	5	4	100	**24**
	II	18U1FEN01	English – I	5	4	100	
	III	18U1CH01	Core –I General chemistry-I	5	4	100	
		18U1CH02	C.C-Agricultural Chemistry	5	4	100	
		18U1CHP01	Core practical – I Volumetric Estimations	3	2	100	
		18U1MAA01	Allied Mathematics – I	5	4	100	
		18U1VE01	Value Education- Yoga	2	2	100	
			TOTAL	**30**	**24**	**700**	
II	I	18U2FTA02	Language- II	5	4	100	**24**
	II	18U2FEN02	English- II	5	4	100	
	III	18U2CH03	Core – II General chemistry-II	5	4	100	
		18U2CH04	C.C- Dye, Paper, Sugar & Effluent Treatment	5	4	100	
		18U2CHP02	Core Practical- II Inorganic qualitative Analysis	3	2	100	
		18U2MAA02	Allied Mathematics- II	5	4	100	
	IVB	18U2ES01	Environmental Studies	1	1	100	
		18U2VE02	Values for Life	1	1	100	
			TOTAL	**30**	**24**	**800**	
III	I	18U3FTA03	Language – III	5	4	100	**21**
	II	18U3FEN03	English – III	5	4	100	
	III	18U3CH05	Core – III General chemistry-III	6	4	100	
		18U3CHP03	Core Practical – III Industrial practical	3	2	100	
		18U3PHA01	Allied Physics –I	4	3	100	
		18U3PHAP01	Allied Practical- I	3	-	-	
	IVA	18U3CHS01	Skill Based Course – I	2	2	100	
		18U3ENN01	Non Major Elective Course-I	2	2	100	
			TOTAL	**30**	**21**	**700**	

Credits - 69 **Hrs-90** **Marks- 2200**

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

IV	I	18U4FTA04	Language –IV	5	4	100	23
	II	18U4FEN04	English –IV	5	4	100	
	III	18U4CH06	Core – IV General chemistry-IV	6	4	100	
		18U4CHP04	Core Practical- IV Physical chemistry practical	3	2	100	
		18U4PHA02	Allied Physics - II	4	3	100	
		18U4PHAP01	Allied Physics Practical-I	3	2	100	
	IVA	18U4CHS02	Skill Based Elective Course – II	2	2	100	
		18U4PHN02	Non Major Elective Course – II	2	2	100	
			TOTAL	**30**	**23**	**800**	
V		18U5CH07	C.C-Inorganic Chemistry-I	5	4	100	23
		18U5CH08	C.C-Organic Chemistry-I	5	4	100	
		18U5CH09	C.C-Spectroscopy-I	5	4	100	
		18U5CHE01	Elective – I Physical Chemistry-I	5	4	100	
		18U5CHE02	Elective – II Analytical Chemistry	5	4	100	
		18U5CHP05	Core Practical -V Gravimetric Estimation	5	3	100	
			TOTAL	**30**	**23**	**600**	
VI	III	18U6CH10	C.C-Inorganic Chemistry -II	5	4	100	25
		18U6CH11	C.C-Organic Chemistry –II	5	4	100	
		18U6CH12	C.C-Pharmaceutical chemistry	5	4	100	
		18U6CH13	C.C-Spectroscopy-II	5	4	100	
		18U6CHE03	Elective III Physical Chemistry-II	6	4	100	
		18U6CHP06	Core Practical –VI Organic Practical	4	3	100	
		18U6EX01	Extension activities	-	2	-	
			TOTAL	**30**	**25**	**600**	

Credits-71 Hrs-90 Marks - 2000

Total Credits	140
Total Hrs	180
Total Marks	4200

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

ALLIED PAPERS

Semester	Allied (Theory & Practical)	Paper Code
I / III	Allied Chemistry Paper I (Inorganic , Organic , Physical - I)	18U3CHA01
II/ IV	Allied Chemistry Paper II (Inorganic , Organic , Physical- II)	18U4CHA02
II/ IV	Allied Chemistry Practical (Volumetric & Organic Analysis)	18U4CHAP01

NON – MAJOR ELECTIVE COURSES

Semester	Paper	Paper Code
III / IV	Dairy Chemistry	18U3CHN01
III / IV	Textile Chemistry	18U3CHN02
III / IV	Medicinal Chemistry	18U3CHN03
III / IV	Industrial Chemistry – I	18U3CHN04
III / IV	Industrial Chemistry – II	18U3CHN05
III / IV	Food Chemistry	18U3CHN06
III / IV	Chemistry in Agriculture	18U3CHN07
III / IV	Polymer & Plastics	18U3CHN08

Programme Specific Outcomes (B.Sc Chemistry)

PSO.NO	Upon Completion of B.Sc Degree programme,the graduates will be able to
PSO1	To understand the periodic law and significance of atomic number, electronic configuration as the basic for periodic classification and classify elements into a s,p,d and f blocks and learn their main characteristics.
PSO 2	To understand the bonding models, structures, reactivity's and applications of coordination complexes, hydrides, metal carbonyls, and organometallics
PSO 3	Able to understand the State and apply the laws of thermodynamics; perform calculations with ideal and real gases; design practical engines by using thermodynamic cycles; predict chemical equilibrium and spontaneity of reactions by using thermodynamic principles.
PSO 4	To understand chemical structure, chemical bonding, molecular structure and organic reaction mechanisms
PSO 5	Able to understand electrophilic, nucleophilc substitution reaction and organic synthesis of natural products
PSO 6	Learn to the laboratory skills and safely to transfer and interpret knowledge entirely in the working environment.
PSO 7	Able to understand the reaction mechanisms and synthetic application of reagents
PSO 8	To apply the Analytical techniques, preparation and applications of inorganic and organic compounds
PSO 9	To apply their knowledge to problem-solving, structure using various spectroscopic techniques in pharmaceutical industries
PSO 10	To understand the basic knowledge is used to chemical industry like cement industries, medicinal products, agro products, paper industries, textile industries, paint industries, Rubber industries, Petrochemical industries, Food processing industries and Fertilizer industries etc

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

Core - GENERAL CHEMISTRY – I

Semester: I **Credits 4**

Paper Code: 18U1CH01 **Hours/week: 5**

Objectives

1. To understand the principles of quantum numbers and periodicity of elements.
2. To understand the concept of bonding and effects.
3. To make the students acquire knowledge about nomenclature of simple aliphatic Compounds, the nature and types of bonding.
4. To study the theoretical concept of various titration methods.
5. To understand the theoretical aspects of inorganic qualitative and quantitative analysis.

UNIT-I Atomic Structure and Periodic properties:

Fundamental particles of matter – their composition - Rutherford's and Bohr's model- its limitations – Somerfield model.

Quantum number – Principle, Azimuthal, Magnetic and Spin quantum numbers and their significance- Hund's rule, Pauli's Exclusion principle, Aufbau principle and its applications. Stability of half-filled and fully filled orbital's.

Classification as s, p,d & f block elements, Variation of periodic properties: Atomic volume, Atomic and ionic radii, Ionization Energy, Electron affinity and Electro negativity along periods and groups-Factors affecting periodic properties-Pauling's and Mullikan's scale of Electro negativity.

Unit - II: Bonding and Molecular Structure:

Bonding: VB theory and types of bonding, Concept of Hybridization and geometry of sp3, sp^2 and sp hybridization.

Covalent bond definition properties of covalent molecules: Bond length, Bond angle, Bond energy, Bond Polarity & Dipole moment.

Electro displacement effects-Inductive, Mesomeric, Electromeric, Resonance, Hyper conjugation and steric effects.

Unit - III: Classification and nomenclature of organic compounds.

Classification of organic compounds.

IUPAC nomenclature of branched and un branched Alkanes, Alkyl groups, Alkenes, Dienes and Alkynes.

General methods of preparation, properties and applications – Alkanes, Alkenes and Alkynes.

Unit - IV: Analytical Methods-I

Volumetric Analysis: Primary and secondary standards –concept of standard solution - Preparation of standard solutions- equivalent weight, molecular weight normality and molarity,molality.

Acid-base titrations-types of acid-base titrations-titration curves selection of suitable indicators – Acidimetry and alkalimetry.

Redox titrations, Complexometric titrations (EDTA titration), precipitation titrations- Iodimetry, permanganometry.

UNIT-V Analytical Methods - II

Qualitative Inorganic Analysis: Dry test, flame test, Cobalt nitrate test - Wet confirmatory tests for acid radicals - Interfering acid radicals- Theory of Interference- Elimination of Interfering acid radicals.

Analysis of basic radicals: Group separation and confirmatory tests for basic radicals- Uses of complexing agents in qualitative analysis- common ion effect and solubility product - role of solubility product in the precipitation of various cations in different groups in qualitative analysis.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Students learn fundamental of atoms and periodicity in properties of Elements	**1**
CO-2	Students acquire knowledge in hybridization and effects in bonding	**4**
CO-3	Students observe the concepts of various titrations in methods	**6**
CO-4	Students can analysis and identify acid and basic radicals.	**6**

TEXT BOOKS AND REFERENCE BOOKS:

1. Soni.P.L, Text Book of Inorganic Chemistry, Sultan Chand & Sons.
2. Puri and Sharma, Text book of Inorganic Chemistry-Vishal publishing co.
3. Madan.R.D., Inorganic Chemistry, S. Chand & Co.,
4. Morrison and Boyd, Organic Chemistry, Allyn and Bacon.
5. Bhal. B.S, and Arun Bhal, A Text book of Organic Chemistry.
6. Soni.P.L. Text Book of Organic Chemistry, Sultan Chand andSons.
7. Gurudeep R. Chatwal, Physical Chemistry.
8. Frank J. Welcher and Richard B. Hahn, Semimicro Qualitative Analysis, New Delhi, Affiliated East-west Press Pvt. Ltd. (1969).

Core - AGRICULTURAL CHEMISTRY

Semester: I **Credits 4**

Paper Code: 18U1CH02 **Hours/week: 5**

Objectives

1. To understand physical and chemical properties of soils.
2. To understand the role of fertilizers.
3. To get knowledge about the manures in agriculture.
4. To acquires knowledge about in effects of pesticides and Instectides.
5. To acquire more about effects of fungicides and herbicides.

UNIT – I Soils

Soils – Physical properties- Soil separates and particle size distribution, Soil texture and structure, Soil temperature and soil water.

Soil Chemical Properties-Soil colloids, Inorganic colloids and organic colloids.

UNIT – II Fertilizers

Fertilizers: Effect of Nitrogen, Potassium and phosphorous on plant growth – commercial method of preparation of urea, triple super phosphate.

Complex fertilizers and mixed fertilizers – their manufacture and composition. Secondary nutrients – micronutrients – their function in plants.

UNIT – III Manures

Manures: Bulky organic manures – Farm yard manure – handling and storage-oil cakes- blood meal – fish manures.

Nutrient Potential of different organic manures- Agricultural, industrial and urban wastes.

UNIT – IV Pesticides and Insectides

Pesticides – classification of Insecticides, fungicides, herbicides as organic and inorganic – general methods of application and toxicity. Safety

measures when using pesticides.

Insecticides: Plant products – Nicotine, pyrethrin – Inorganic pesticides – borates. Organic pesticides – D.D.T. and BHC.

UNIT – V Fungicides and Herbicides

Fungicide : Sulphur compound, Copper compound, Bordeaux mixture.

Herbicides : Inorganic Herbicides-Arsenical boron compound

Acaricides – Rodenticides. Attractants – Repellants. Preservation of seeds.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Student can learn properties of soils.	2
CO-2	Student learns merits and demerits of fertilizers.	1 0
CO-3	Student gets knowledge about effects of pesticides, Insectides, fungicides and herbicides.	9

Text Books and Reference Books:

1.Brady.N.C, The Nature and properties of soils – Eruasia Publishing House (P) Ltd.,

2.Jones.V.S, Fertilizers and soil fertility – Prentice Hall of India, New Delhi.

3.Fracer.D.E.H, Chemistry of Pesticides – D.Van Nostrand Co.,

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

Core - GENERAL CHEMISTRY – II

Semester- II **Credits 4**

Paper Code: 18U2CH03 **Hours/week : 5**

Course Objectives

1. To learn the concepts of bonding and molecular orbital theory.
2. To know the shapes of molecules by VSEPR theory.
3. To study the preparations and reactions of alkenes, cycloalkanes, alkenes, alkynes and Dienes
4. To learn the concepts and behavior of gases.
5. To learn the characteristics of S-block elements.

UNIT – I Chemical Bond:

Ionic bond – properties of ionic compounds-inert pair effect-Born-Haber cycle- Polarisation of ions - factors affecting Polarisation-importance of Polarisation of ions-Fajan's rules and its applications- Lattice energy.

MO Theory – Bonding and antibonding orbitals –Application of MO theory to H_2, He_2, N_2, O_2 and NO comparative study of V.B and M.O. Theory.

VSEPR theory–shapes of simple inorganic molecules ($BeCl_2$,$SiCl_4$,PCl_5,SF_6,IF_7,NH_3,BF_3,H_2O).

UNIT-II Hydrides and Carbides:

Hydrides - of Hydrides. Ionic Hydrides -Preparation, properties and uses of LiH and NaH. Covalent Hydrides – silanes - General study - Chemistry of monosilanes and disilanes- Differences between silanes and alkanes.

Metallic Hydrides- preparation, properties, structure and uses Complex Hydrides- $NaBH_4$ and $LiAlH_4$-preparation, properties, uses and structure.

Carbides -Preparation, properties and uses of SiC, CaC.

Unit - III: S-block Elements:

Position of Hydrogen in the periodic table- isotopes of hydrogen- ortho and para hydrogen.

S -Block elements – alkali metals-general characteristics - oxides, hydroxides and halides of alkali metals, alkaline earth metals and their general characteristics

UNIT-IV Reaction of Alkenes and Alkynes:

Classification of dienes-isolated, conjugated and cumulated dienes-butadiene-1,2 and 1,4 additions thermodynamic and kinetic controlled products-Diels - Alder reactionsynthesis of dienes- 1,3-butadiene,

Electrophilic and free redical mechanism of addition in alkenes-Markownikoff's rule-peroxide effect-mechanism of Hydroboration, Ozonolysis and allylic substitution by NBS- Polylymerisation.

Reaction mechanism-Elimination reactions-mechanisms of E1 and E2 reactions-cis and trans eliminations-Hofmann and Saytzeff rule.

Reaction intermediates- Free radical, Carbocation, Carbanion-generation, chemical properties, structure and stability.

UNIT – V Gaseous state:

Boyles law and Charles law in different forms –Avagadro's law –ideal gas equation- The Gas Constant R in different unit. Kinetic theory of gases – molecular velocities

Real gases, cause of deviation of real gases from ideal behavier - definition ,equation and RMS velocities (derivation not required). Average and root mean square velocities – Distribution of molecular velocities- Maxwell equation (derivation not required) –effect of temperature on velocity Distribution

Vander –Waals equation of states – derivation-significance of critical constants –vitial equations of state –law of corressonding state – compressibility factor.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Student can illustrate the geometry of molecules.	**4**
CO-2	Student to get knowledge about properties of hydrides and carbides.	**2**
CO-3	Student acquires knowledge in reaction mechanism.	**7**
CO-4	Student acquires knowledge about general characteristics of alkali and alkaline earth metals.	**1**

TEXT BOOKS AND REFERENCE BOOKS:

1. Soni.P.L, Text Book of Inorganic Chemistry, Sultan Chand & Sons.
2. Puri and Sharma, Text book of Inorganic Chemistry-Vishal publishing co.
3. Madan.R.D., Inorganic Chemistry, S. Chand & Co.,
4. Morrison and Boyd, Organic Chemistry, Allyn and Bacon.
5. Bhal. B.S, and Arun Bhal, Advanced Organic Chemistry.
6. Soni.P.L., Text Book of Organic Chemistry, Sultan Chand andSons.
7. Gurudeep R. Chatwal, Physical Chemistry.

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

Core - DYE, PAPER, SUGAR AND EFFLUENT TREATMENT

Semester: II **Credits 4**

Paper Code: 18U2CH04 **Hours/week: 5**

Course Objectives

1. To study the classification and application of dyes.

2. To understand the application of paper industry.

3. To study the process of sugar industry.

4. To impart knowledge in effluent treatment on dye, paper and sugar.

UNIT-I

Dyes – classification - Quinonoid Dyes-Examples and structure-Antharquinone and Mordant Dyes-Synthesis and Applications of Alizarin Phthalocyanin dyes-Copper Phthalocyanin-Synthesis and Applications.

UNIT-II

Diphenylmethane Dyes- Auramine-Triphenylmethane Dyes-Malachite Green, Crystal Violet, Pararosaniline-Preparation and applications.

Indigo Dyes-Preparation and application-Derivatives of Indigo-Synthesis and uses of Indigosol and tetrahaloindigo.

UNIT-III Paper industry

Paper industry: Manufacture of paper: production of sulphite pulp Paper (bleaching, filling, sizing and calendaring) World production of sugar and paper – survey

UNIT-IV Sugar Industry

4.1 Sugar industry: Double sulphitation process, refining, and grading of sugar.

4.2Saccharin: synthesis and uses as a sugar substitute. Ethanol: manufacture from Molasses by fermentation

UNIT-V

Textile Effluent – Characteristics, Physical & Chemical Parameters (Colour, P^H, Odour, TDS, COD, BOD…), effect of untreated effluent, degradability of wastes. Effluent treatment plants-Aerated lagoon, photo oxidation process.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Student learns about the dyes in various industries.	**5**
CO-2	Student knows about the manufacture of paper.	**10**
CO-3	Student learns the process of sugar industry	**7**
CO-4	To attain knowledge about textile effluent.	**10**

References Books :

1.B.K.Sharma--Industrial Chemistry‖,Goel Publishing co,1997

2.R.Chatwal –Synthetic Dyes‖-Himalayan Publishing House, 1995

3.R.S.Prayag--Dyeing of wool,silk and man made fibres.

4.V.A.Shenai,‖Chemistry of Dyes and Principles of Dyeing.

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

CORE - GENERAL CHEMISTRY – III

Semester: III **Credits 4**

Paper Code: 18U3CH05 **Hours/week : 5**

Course Objectives

- To study the characteristics of non-metals.
- To learn the metallurgical processes.
- To study the basic chemistry of alcohols.
- To study the basic reaction and mechanism.
- To grasp the concepts of thermodynamics.

Unit - I: p-block Elements:

1.1 p - block elements – Boron ,Carbon ,Nitrogen, Chalcogens and Halogens with reference to electronic configuration, oxidation states, metallic character, Electron negativity
,Electron affinity and ionization energy .

Unit - II: Metallurgy

2.1 Occurrence of metals- steps involved in the metallurgical processes concentration of ore by froth floatation, gravity separation and magnetic separation methods. Calcination- roasting- smelting- aluminothermic process- Purification of metals by electrolysis and zone refining.

UNIT-III Alcohols and Phenols

Alcohol: classification and nomenclature.

Monohydric alcohols preparation by reduction of aldehyde, ketones, carboxylic acid and carboxylic esters properties - Hydrogen bonding, acidic nature, reaction of alcohol. Chemistry of glycols and glycerol – uses.

Preparation of phenol including di and trihydric phenols-physical and chemical properties and uses.

UNIT-IV Nucleophilic Substitution Reactions and Aromaticity:

– Reaction mechanism-Aliphatic nucleophilic substitution – SN^1, SN^2 and SN^i reactions Reactivity-effects of structure of substrate, attacking nucleophile, leaving group and reaction medium - comparision between substitution and elimination reactions.

Aromaticity: Aromatic hydrocarbons - resonance in benzene-delocalized cloud in benzene -Huckel's (4n+2) rule and its simple applications.

UNIT V Thermodynamics-I

The first law of thermodynamics-Terminologies in Thermodynamics-Thermodynamic equilibrium-Nature of work and heat-Law of conservation of energy - Heat capacity of a system- Expansion of an ideal gas-work done in reversible isothermal expansion, isothermal compression and reversible adiabatic expansion – Joule- Thomson effect, -Inversion temperature zeroth law of thermodynamics-Absolute temperature scale.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	To acquire knowledge in non-metals.	**1**
CO-2	To understand various processes in metallurgical.	**2**
CO-3	To understand the laws of thermo dynamics principles of thermo chemistry	**3**
CO-4	To acquire more knowledge in reaction and mechanism.	**7**

TEXT BOOKS AND REFERENCE BOOKS:

1. Soni.P.L, Text Book of Inorganic Chemistry, Sultan Chand & Sons.
2. Puri and Sharma, Text book of Inorganic Chemistry-Vishal publishing co.
3. Madan.R.D., Inorganic Chemistry, S. Chand & Co.,
4. Morrison and Boyd, Organic Chemistry, Allyn and Bacon.
5. Bhal. B.S, and Arun Bhal, A Text book of Organic Chemistry.
6. Soni.P.L., Text Book of Organic Chemistry, Sultan Chand andSons.

7. Gurudeep R. Chatwal, Physical Chemistry.
8. Puri and Sharma, Principles of Physical Chemistry.

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

SKILL BASED ELECTIVE-I- FOOD CHEMISTRY

Semester: III | Credits : 2

Paper Code: 18U3CHS01 | Hours/week : 2

Course objectives

- To familiarize the students on food chemistry and food Poison.
- To acquire the knowledge on food additives and packaging of foods.
- To understand the food preservation methods.
- To study the basics in vitamins and minerals.

UNIT-I Food Adulteration:

Sources of foods, types, advantages and disadvantages, constituents of foods, carbohydrate, protein, fats, oils, colours, flavors, natural toxicants.

UNIT-II Food Poisoning:

Sources, causes and remedy- Causes and remedies for acidity, gastritis, indigestion and constipation

UNIT-III Food Preservation and Processing:

Food spoilage, causes of food spoilage, types of Food spoilage, food preservation by heating-sterilization, pasteurization.

UNIT-IV Vitamins:

Definition, Classifications, dietary Sources, requirement deficiency diseases of A, C, K, E1 and B6.

UNIT-V Minerals:

Principle - Mineral elements in food - sources functions deficiency symptoms and daily requirements of Na,Ca, K, Mg, Fe, S and P.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	To learn on food chemistry and food Poisons.	10
CO-2	To understand the effects food additives and packaging of foods.	10
CO-3	To attain more knowledge in food preservation	8

	methods.	
CO-4	To acquire knowledge in application of vitamins and minerals.	**4**

REFERENCE BOOKS:

1. Seema Yadav : ―Food Chemistry‖ ,Anmol publishing (P) Ltd,New Delhi

Car H. Synder : – The Extraordinary Chemistry for ordinary things‖
John Wiley & sons inc..,New York,1992

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

Core - GENERAL CHEMISTRY – IV

Semester: IV **Credits 4**

Paper Code: 18U4CH06 **Hours/week : 5**

Course outcomes

1. To study the non-metals of boron and carbon group elements.
2. To study the preparation and derivatives of amines.
3. To learn the basics in molecular rearrangement.
4. To study the law of thermodynamics.

Unit - I: Boron and Carbon group elements:

Boron group elements with reference to inert pair effect - Diagonal relationship between B and Si.

Hydrides of Boron- -general methods of preparation of Boranes, properties of Boranes-Structure of Borazole, Diborane and higher Boranes (B_5H_9,B_5H_{11}, $B_{10}H_{14}$)

Carbon group elements with reference to inert pair effect and catenation. Allotropy- structure of graphite and diamond. Difference between CO_2 and SiO_2. Difference between CCl_4 and $SiCl_4$. Preparation, properties and uses of silicon carbide and silicones.

UNIT II - Amines and Derivatives:

Aliphatic amines-separation of amines by Hinsberg's & Hofmann methods - preparation and properties of dimethyl amine, trimethyl amine and hexamethylene diamine.

Derivatives of aniline-acetanilide, N-methyl aniline & N, N – dimethylaniline – preparation and properties.

Diazoniumcompounds-diazotization mechanism-diazonium ion as a weak electrophile-preparation and synthetic uses of diazoacetic ester & diazomethane.

UNIT-III Molecular rearrangements and reagents:

3.1 Mechanisms of pinacol-pinacolone, Beckmann, benzidine, Hofmann, Curtius, Lossen, Schmidt and benzilic acid rearrangements.

3.2.Important reagents and their applications in organic chemistry – $AlCl_3$, H_2/Ni, H_2/Pd- $BaSO_4$, Zn/Hg-HCl, NBS, Me_2CuLi, Lead tetra acetate and

Osmium tetroxide

UNIT-IV- Thermodynamics-II

Limitations of the first law-need for second law- statements of second law of Thermodynamic**s** -cyclic process-Carnot cycle.

Concept of entropy-Entropy-a state function-Entropy change in isothermal expansion of an ideal gas-entropy change in reversible and irreversible processes-Clausius inequality- Entropy change accompanying change of phase-–Entropy of mixture of ideal gases-entropy of mixing-physical significance of entropy.

UNIT V- Thermodynamics-III

Work and free energy functions-Maxwell's relationships criteria for reversible and irreversible processes -Gibbs-Helmholtz equation-Partial molar free energy. Concept of chemical Potential- Gibb's Duhem equation Chemical Potential in a system of ideal gases- Duhem- Margulus equation. Clapeyron equation-Clapeyron- Clausius equation-Applications of Clapeyron-Clausius equation.

Third law of thermodynamics Nernst heat theorem - statement of III law of thermodynamics

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	To acquire more knowledge in non-metals.	1
CO-2	To understand the fundamentals of amines and derivatives	4
CO-3	To attain more knowledge in molecular rearrangement.	7
CO-4	To understand the laws of thermodynamics principles of thermochemistry	3

Text books and reference books:

1. Soni.P.L, Text Book of Inorganic Chemistry, Sultan Chand & Sons.

2. Puri and Sharma,Text book of Inorganic Chemistry.
3. Madan.R.D., Inorganic Chemistry, S. Chand & Co.,

4. Morrison and Boyd, Organic Chemistry, Allyn and Bacon.
5. Bhal. B.S, and Arun Bhal, A Text book of Organic Chemistry. Soni.P.L., Text Book of Organic Chemistry, Sultan Chand andSons.

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

SKILL BASED ELECTIVE-II- POLYMER CHEMISTRY

Semester: IV **Credits 2**

Paper Code: 18U4CHS02 **Hours/week: 2**

Objectives

To learn the structures, functions, properties and Polymerization mechanisms of

Polymers.

UNIT-I

Introduction to Polymers and macro molecules. Natural and synthetic Polymers Classification of Polymers-addition and condensation Polymers.

General methods of preparation of Polymers: Ionic, Free radical, Coordination Polymerization.

UNIT-II

Structure of Polymers s- linear, branched and cross linked Stereochemistry of Polymers-Isotactic, Sydiotactic and Atactic.

Basic physical and thermal Properties of Polymers : The crystalline melting Point. The glassy state and glass transition temperature

UNIT-III

Copolymerization – Definitions – homo and co Polymers. Block co Polymers and Graft co Polymers.

Molecular weight of Polymers Number average molecular weight and weight average molecular weight methods. Determination of molecular weight by Viscosity methods.

UNIT-IV

Poly olefins-Polythene, PTFE, Freons ,PVC , Polypropylene and Polystyrene preparation and their uses.

Natural and synthetic rubbers.-Constitution of natural rubber. Butyl, Buna, Buna-S , Buna-N, Neoprene , SBR and Polyurethane.

UNIT-V

5.1 Plastics and Resins Definitions. Thermoplastic and thermosetting resins. Constituents of plastics - fillers, dyes, pigments, plasticizers, Lubricants and catalysts. Uses of thermoplastic resins and thermosetting resins.

Course Outcomes

CO No.	After completion of this course , students will be able to	PSOs addressed
CO-1	Understanding the classification, structure, function and importance of Polymers.	**10**
CO-2	Acquiring the knowledge on nature and physical properties of Polymers.	**7**
CO-3	Knowing the solubility parameters, thermodynamic properties and methods to determine molecular weight of Polymers.	**8**
CO-4	Analyzing the synthesis of different Polymers and examining their Properties.	**9**

REFERENCES:

1. V. R. Gowrikar ,N.V.Viswanathan : Polymer Science- Wiley Eastern Limited ,New Delhi. 1986
2. R.B.Seymour, Introduction to Polymer Chemistry, MC Craw Hill, New York 1971.
3. S.S.Dara , A Text Book in Engineering Chemistry, S.Chand & Company Ltd, New Delhi. Third Edition ,!992.

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

ALLIED CHEMISTRY-I

INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY-I

Semester: III **Credits 3**

Paper Code: 18U3CHA01 **Hours/week: 5**

Course Objectives

- To study the molecular orbital theory, covalent bond, hybridization and stereoisomerism.
- To understand the effects of Inductive, resonance, Hyper conjugative and steric effects.
- To study the nuclear reactions, application of radioisotopes.
- To understand the concept of Huckel's rule.
- To study the principle and application of chromatography.

UNIT-I Chemical Bonding:

1.1 Molecular Orbital Theory-bonding, antibonding and nonbonding orbitals. M.O. diagrams of Hydrogen, Helium, Nitrogen, Fluorine and Nitric Oxide discussion of bond order and magnetic properties.

1.2. Hydrides-classification and characteristics - preparation, properties and uses of Borazole, $NaBH_4$ and $LiAlH_4$.

UNIT-II

2.1 Covalent Bond-Orbital Overlap-Hybridization – Geometry of Organic molecules- Methane, Ethylene and Acetylene

2.2. Electron displacement Effects: Inductive, Resonance, Hyper conjugative & steric effects. Their effect on the properties of compounds.

2.3 Stereoisomerism: Elements of symmetry- cause of optical activity, Tartaric acid. Racemisation. Resolution. Geometrical isomerism of Maleic and Fumaric acids-Keto-enol Tautomerism of Acetoacetic ester.

UNIT-III Nuclear Chemistry:

Natural radioactivity-radioactive series including Neptunium series-Group displacement law.

Nuclear Binding energy, mass defect.

Nuclear Fission and Nuclear Fusion-differences – Stellar energy.

Applications of radioistopes-C-14 dating, rock dating, isotopes as tracers, study of Reaction mechanism (ester hydrolysis)

UNIT-IV

Aromatic compounds-Aromaticity-Huckel's rule

Electrophilic substitution in Benzene-Mechanism of Nitration, Sulphonation Halogenation, Alkylation and Acylation.

Heterocyclic compounds:- Preparation, properties and use of Furan, Thiophene, Pyrrole and Pyridine.

UNIT-V

Solutions: Liquid in liquid type-Raoult's law for ideal solutions. positive and negative deviation from Raoult's law-Reasons and examples, Fractional distillation and Azeotropic distillation.

Chromatography: principle and application of column, paper and thin layer chromatography.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	The student's can able to illustrate the molecular orbital theory, covalent bond, hybridization and stereoisomerism.	**2**
CO-2	To understand the effects of Inductive, resonance, Hyper conjugative and steric effects.	**4**
CO-3	To study the nuclear reactions, application of radioisotopes.	**6**

CO-4	To learn the concept of Huckel's rule.	**8**

Reference books :

1. 1.Soni.P.L, Text Book of Inorganic Chemistry, Sultan Chand & Sons.
2. 2.Puri and Sharma, Text book of Inorganic Chemistry-Vishal publishing 3.Soni.P.L., Text Book of Organic Chemistry, Sultan Chand and Sons.
3. 4.Jain.M.K, Principles of Organic Chemistry-Vishal publishing Co.
4. Kundu and Jain, Physical Chemistry, S. Chand.

5.Puri,Sharma and Pathania, Text-book of Physical Chemistry, Vishal Publishing co

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

ALLIED CHEMISTRY-II

INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY-II

Semester: IV **Credits 3**

Paper Code: 18U4CHA02 **Hours/week: 5**

Course Objectives

- To study the werner's theory, pauling theory.
- To understand the preparation and properties carbohydrates and aminoacids.
- To understand the causes and effects of cancer, diabetes and AIDS.
- To study the photochemistry and electrochemistry.

UNIT-I

Co-ordination chemistry-definition of terms-classification of ligands-Nomenclature- Chelation-Examples. Chelate effect explanation.

Werner's theory-conductivity and precipitation studies. Sedgwick's theory-Effective Atomic Number concept.

Pauling's theory-postulates-Application to octahedral, square planar and tetrahedral complexes. Pauling's theory and magnetic properties of complexes. Merits and demerits of Pauling's theory.

UNIT-II

2.1 Carbohydrates: Classification, preparation and properties of Glucose and Fructose- Properties of Starch, Cellulose and derivatives of Cellulose. Inter conversion of Glucose to Fructose and vice versa.

2.2. Amino Acids-classification, preparation and properties of Glycine. and Alanine. Preparation of peptides (Bergmann method only).

UNIT-III

3.1 Chemotherapy: Preparation, uses and mode of action of sulpha drugs- sulphadiazine and sulphafurazole. Uses of penicillin, chloramphenicol and streptomycin, Definition and one example each for-analgesics, antipyretics, tranquilizers, sedatives, hypnotics, local anaesthetics and general anaesthetics.

3.2. Cause and treatment of-diabetes, cancer and AIDS.

UNIT-IV

Photochemistry: Grotthus-Draper law and Stark-Einstein's law of photochemical equivalence. Quantum yield. Example for photochemical reactions- Hydrogen-Chlorine reaction (elementary idea only) photosynthesis. Phosphorescence, Fluorescence, Chemiluminescence and Photosensitisation – definition with examples.

Phase Rule: Phase rule and the definition of terms in it. Application of phase rule to water system. Reduced phase rule and its application to a simple eutectic system (Pb-Ag) Freezing mixtures.

UNIT-V

Electro Chemistry: Kohlrausch law -measurement of conductance, pH determination. Conductometic titrations. Galvanic cells- EMF-standard electrode Potentials, reference electrodes, electrochemical series and its applications. Principle of electroplating.

Corrosion: Methods of prevention.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	To understand and illustrate the Werner's theory, Pauling theory.	**2**
CO-2	To understand the preparation and properties carbohydrates and amino acids.	**7**
CO-3	To acquire more knowledge in causes and effects of cancer, diabetes and AIDS.	**10**
CO-4	To study the Phosphorescence, Fluorescence, Chemiluminescence and Photosensitization in photochemistry.	**7**

Reference books :

1.Soni.P.L, Text Book of Inorganic Chemistry, Sultan Chand & Sons.

2.Puri and Sharma, Text book of Inorganic Chemistry-Vishal publishing

3.Soni.P.L., Text Book of Organic Chemistry, Sultan Chand and Sons.

4.Jain.M.K, Principles of Organic Chemistry-Vishal publishing Co.

Kundu and Jain, Physical Chemistry, S. Chand.

6.Puri,Sharma and Pathania, Text-book of Physical Chemistry, Vishal Publishing co.

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

Core - INORGANIC CHEMISTRY –I

Semester: V **Credits 4**

Paper Code: 18U5CH07 **Hours/week : 5**

Unit - I Transition metals (d – block elements):

First, second and third transition series - General characteristics – Metallic character, atomic and ionic radii – oxidation states, colour, complex formation, catalytic and magnetic properties - Important compounds of transition metals: Ziegler – Natta catalyst. Prussian blue, Sodium nitro prusside and Wilkinson's Catalyst - $KMnO_4$ and $K_2Cr_2O_7$.

Unit - II Inner transition metals (f – block elements):

Lanthanides: Properties of lanthanides. Electronic configuration – oxidation states – ionic radii, lanthanide contraction. Colour and magnetic properties. Extraction of mixture of lanthanides from monazite sand. Uses of lanthanides.

Actinides: Sources of actinides – preparation of transuranic elements - Electronic configuration – oxidation states – ionic radii – Colour of ions – comparison with lanthanides. **UNIT-III Concept of acids, bases and Non aqueous solvents:**

Acids and Bases: Arrhenius, Bronsted-Lowry, the Lux-Flood, Solvent system and Lewis concepts of acids and bases.Relativestrength of acids and bases-Effect of solvent- Levelling effect- Usanovich concept.

Hard and Soft Acids and Bases-classification of acids and bases as hard and soft – examples-Pearson's HSAB concept, acid-base strength and hardness and softness, Symbiosis, - Applications of HSAB principle.

Non-aqueous solvents – properties and classifications.

UNIT IV Coordination Chemistry:

Definition of the terms-Classification of ligands- Nomenclature of mononuclear and Polynuclear complexes-chelating ligands and chelates-Examples-chelate effect-explanation. Coordination Number and stereochemistry of complexes.

Werner's theory-conductivity and precipitation studies - Sidgwick's

theory-Effective Atomic Number concept.

Isomerism in complexes-Structural Isomerism—types. Stereoisomerism-Geometrical isomerism in 4 and 6 coordinated complexes. Optical isomerism in 4-and 6-coordinated complexes.

UNIT-V Theories Of VBT & CFT:

Theories of bonding in complexes-Valence Bond Theory- postulates – Hybridization and geometries of complexes-Outer orbital and inner orbital octahedral complexes. Square planar and tetrahedral complexes-V.B. Theory and magnetic properties of complexes-limitations of
V.B. Theory.

Crystal Field Theory-postulates-d-orbital splitting in octahedral, tetrahedral - Spectrochemical series-High spin and low spin complexes-C.F. Theory and magnetic properties of complexes-Crystal Field Stabilization Energy (CFSE) and its uses.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	To understand the properties of transition elements.	2
CO-2	To understand the properties of inner-transition elements.	1
CO-3	Knowing the basic concepts of acid and base.	6
CO-4	Understanding basic concepts of coordination chemistry.	2

Text books and reference books:

1.Philips and Williams, Inorganic Chemistry, Oxford University press, Vol & II.

2.Cotton and Wilkinson, Advanced Inorganic Chemistry Wiley Eastern P.Ltd.

3.Lee Von Nastrand J.D. Concise inorganic Chemistry.

4.Manku.G.S., Inorganic Chemistry Tata Mcgraw Hill.

5.Soni.P.L, Text Book of Inorganic Chemistry, Sultan Chand & Sons.

6.Puri and Sharma, Text book of Inorganic Chemistry-Vishal publishing co.

7.Madan.R.D., Inorganic Chemistry, S. Chand & Co.,

8.Dutta, Inorganic Chemistry, Science Book Association.

9.Dara.S.S, A text book of Environmental Chemistry and Pollution control S.Chand & Co.,

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

Core - ORGANIC CHEMISTRY-I

Semester: V **Credits 4**

Paper Code: 18U5CH08 **Hours/week: 4**

UNIT I Stereochemistry-I

Definition-Classification - Optical and Geometrical isomerism.

Optical isomerism – Optical activity-Optical and Specific rotations-conditions for optical activity-asymmetric centre-Chiralityachiral molecules-meaning of (+) and (-) and D and L notations- Elements of symmetry.

Projection formulae-Fischer, Flying Wedge, Sawhorse and Newman projection formulae-Notation of optical isomers- Cahn- Ingold –Prelog rules-R-S. notations for optical isomers with one and two asymmetric Carbon atoms-Erythro and Threo representations.

Conformational Analysis- ethane, n-butane and conformers of cyclohexane (chair, boat and skew boat forms).

UNIT II Stereochemistry-II

Geometrical isomerism- cis-trans, syn-anti and E-Z notations geometrical isomerism in maleic and fumaric acids and unsymmetrical ketoximes-methods of distinguishing geometrical isomers using melting point, dipole moment, dehydration, cyclisation and heat of hydrogenation.

Racemisation-methods of racemisation (by substitution and tautomerism)-Resolution- methods of resolution (mechanical, seeding, biochemical and conversion to diastereoisomers)- Asymmetric synthesis (partial and absolute synthesis) Walden inversion.

Optical activity of allenes and biphenyls.

UNIT III Amino acids and proteins:

Amino acids-classification-essential and non essential amino acids - General properties of amino acids-Zwitter ions, isoelectric point

Proteins-classification based on physical and chemical properties and on physiological functions-primary and secondary structure of proteins-helical and sheet structures (elementary treatment only) – Denaturation of

proteins.

Unit IV Organometallic Compounds:

Introduction to organometallic compounds -Preparation of organometallic compounds with metals like – Mg, Cu, Li, Si, Pd and Gilman reagent their synthetic applications.

UNIT V Chemistry of natural products:

Alkaloids-classification- isolation– general methods of determination of structure of alkaloids-synthesis and structural elucidation of piperine, atropine and nicotine.

Terpenes-classification-isolation- isoprene rule-synthesis and structural elucidation of alpha pinene and camphor.

Course Outcomes

CO No.	After completion of this course , students will be able to	PSOs addressed
CO-1	Learning the basic principles of stereochemistry.	4
CO-2	Develop the synthesis of amino acids, peptides and proteins	5
CO-3	Gain the knowledge about the bonding and structure of organometallic compounds.	2
CO-4	To learn more about chemistry of natural products.	5

Text books and reference books:

1. Finar 1.L. Organic Chemistry, Vol I and II – ELBS.
2. Morrison and Boyd, Organic Chemistry, Allyn and Bacon Inc.
3. Solomons, T.W.G, Organic Chemistry, John Wiley.
4. Bhal. B.S, and Arun Bhal, A Text book of Organic Chemistry.

5. Soni.P.L., Text Book of Organic Chemistry, Sultan Chand andSons.
6. Tiwari, Malhotra and Vishoni, Organic chemistry, Vol I and II,Vikas Publishing House.
7. Raj K. Bansal, A Text Book of Organic Chemistry, Wiley Eastern.

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

Core - SPECTROSCOPY-I

Semester: V **Credits 4**

Paper Code: 18U5CH09 **Hours/week: 5**

UNIT-I Microwave Spectroscopy

Definition of spectrum. Electromagnetic radiation, quantization of different forms of energies in molecules (translational, rotational and electronic). Microwave spectroscopy-theory of microwave spectroscopy, selection rule. Calculation of moment of inertia and bond length of diatomic molecules.

UNIT-II UV - VISIBLE Spectroscopy:

U.V-VISIBLE Spectroscopy-Types of electronic transitions, predissociation spectra and dissociation energy. Applications-Beer's-Lambert's law-O.D.,chromophore, oxochrome, bathochromic and hypsochromic shifts-Instrumentation.

UNIT-III IR Spectroscopy:

IR Spectroscopy-principles-modes of vibration of diatomic, triatomic linear (CO_2) and non-linear triatomic molecules(H_2O)-stretching and bending vibrations-selection rules. Expression for vibrational frequency (derivation not needed)

UNIT-IV Application of IR Spectroscopy:

IR Spectroscopy-instrumentation-sampling techniques. Applications.

UNIT-V Raman spectroscopy:

Raman spectroscopy-condition-Rayleigh and Raman scattering,stokes and antistokes lines.Differences between Raman and I.R.Spectroscopy. Rotational Raman spectra of Non- centrosymmetric molecules(HCl). Mutual exclusion principle (CO_2 and N_2O)

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Gathering the basic knowledge of spectroscopy.	**9**
CO-2	Apply spectroscopic techniques in analyzing the structure of simple organic molecules.	**8**
CO-3	To acquire basic knowledge of Raman spectroscopy.	**9**
CO-4	Gathering the basic knowledge of IR and its application.	**4**

Text books and reference books:

1. Bassett.J, Denney.R.C, Jaffery.G.H and Mendhan.J, Vogel's Hand Book of Quantitative Inorganic Analysis ELBS Longman.
2. Furniss. B.S, Hannaform. A.J, Rogers.V, Smith.P.W.G, and Tatchell.A.R, Vogel's Text Books of Practical Organic Chemistry.
3. Douglas A, Skoog and Donal M. West Hort, Fundamentals of analytical Chemistry Rinechan and Winston Inc., New York.
4. William Kemp, Organic Spectroscopy – ELBS.
5. Venkateswaran.V, Veerasamy.R, and Kulandaivelu.R, Basic Principles of Practical Chemistry.
6. Sharma.Y.R, Elementary Organic Spectroscopy, Principles and applications- S. Chand & Co.

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

ELECTIVE PAPER –I– PHYSICAL CHEMISTRY-I

Semester: V **Credits 4**

Paper Code: 18U5CHE01 **Hours/week : 5**

UNIT-I Solutions:

1.1. Solutions of gases in liquids – Henry's law- solutions of liquids in liquids-Raoult's law-Binary liquid mixture-ideal solution deviation from ideal behavior-Thermodynamics of ideal solutions- V.P-Composition curves, V-P-temperature curves-Azeotropic distillation.

1.2.Nernst's Distribution law-Thermodynamic derivations applications. Solvent extraction.

1.3. Colligative properties – types - boiling point and depression of freezing point-van't Hoff factor-Abnormal molecular mass-Degree of dissociation and association.

UNIT-II Chemical Equilibrium:

2.1.Thermodynamic derivation of equilibrium constants- Kp, Kc and Kx-Relations between Kp, Kc and Kx-Standard free energy change-Derivation of van't Hoff reaction isotherm De-Donder's treatment of chemical equilibria-concept of chemical affinity (no derivation)- Temperature dependence of equilibrium constant-van't Hoff isochore-Pressure dependence of equilibrium constant.

2.2.Adsorption- Physical and chemical adsorption-Types of adsorption isotherms- Freundlich adsorption isotherm-Derivation of Langmuir adsorption isotherm-BET isotherm (postulates only) BET equation (statement).

UNIT-III Chemical Kinetics-I

3.1. Derivation of rate constant of a first and second order reaction-when the reactants are taken at different initial concentrations-when the reactants are taken at the same initial concentrations-Determination of the rate constant of a II order reaction-Derivation of rate constant of a third order reaction-when the reactants are taken at the same initial concentrations. Derivation of half-life periods for second and third order reactions having equal initial concentration of reactants.

3.2.Effect of temperature on reaction rates-Derivation of Arrhenius equation-concept of activation energy-determination of Arrhenius frequency factor and energy of activation.

3.3.Fast reactions – definition – kinetic of fast reaction by temperature jump method (no derivation).

UNIT-IV Chemical Kinetics-II

4.1Collision theory of reaction rates-Derivation of rate constant of a bimolecular reaction from collision theory-Failures of CT.

4.2. Lindemann theory of Unimolecular reactions.

4.3.Theory of Absolute Reaction Rates-Thermodynamic derivation of rate constant for a bimolecular reaction based on ARRTcomparison between ARRT and CT. Significance of free energy of activation and entropy of activation.

4.4.Kinetics of complex reactions of first order opposing, consecutive and parallel reactions-examples with mechanism (no derivation)

UNIT-V Photochemistry:

5.1.Consequences of light absorption-The Jablonski diagram non - radiative transitions- radiative transitions-Grotthus-Draper law- The Stark Einstein law of photochemical equivalence- Quantum efficiency (quantum yield).

5.2.Energy transfer in photochemical reactions photosensitization-Photosynthesis in plants-Chemiluminescence - fluorescence and phosphorescence. Photochemical reactions-Kinetics of hydrogen-bromine reaction-decomposition of HI Photolysis of aldehydes and ketones (Mechanism only).

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Understand the properties of solutions.	**3**
CO-2	Basic concepts and theories of chemical kinetics.	**1**

CO-3	To understand the laws of chemical equilibrium.	**3**
CO-4	Acquiring knowledge about photochemistry and its applications.	**4**

Text books and reference books:

1. Glasstone.S, Text Book of Physical Chemistry, Mac Millian.
2. Glasstone and Lewis, Elements of Physical Chemistry, Mac Millan.
3. Maron and Lando, Fundamentals of Physical Chemistry, Collier, MacMillan.
4. Castellan. G.W, Physical Chemistry, Naropa Publishing House.
5. Walter J. Moore, Physical Chemistry, Orient Longamann.
6. Rakshit.P.C, Physical Chemistry, Science Book Agency.
7. Bajapai. D.N, Advanced Physical Chemistry, S.Chand & Co.,
8. Puri and Sharma, principles of Physical Chemistry.

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

ELECTIVE PAPER –II–ANALYTICAL CHEMISTRY

Semester: V **Credits 4**

Paper Code: 18U5CHE02 **Hours/week: 5**

UNIT I

Laboratory Hygiene & Safety: Storage and handling of corrosive, flammable, explosive, toxic , carcinogenic and poisonous chemicals.

Simple First aid procedure for Accidents: Acid in eye, Alkali in eye, Acid burns, Alkali burns, Bromine burns, poisoning inhalation of gases, cuts by glasses and heat burns.

Data analysis- Error analysis- types of errors- determinate errors, Instrumental errors, Personal errors, Constant errors and Proportional errors- Random or indeterminate errors. Precision, Accuracy and rejection of data.Significant figures, mean, median, mean deviation & standard deviation.

UNIT II

Purification techniques: Principles and techniques of distillation, fractional distillation, steam distillation and Azeotropic distillation – Re crystallization steps involved in recrystallization, solvent for re- crystallization, filtration, removal of colouring matter during crystallization, precautions, sublimations- advantages.

Criteria and tests for purity: Melting and Boiling Points-definition, determination of Melting and Boiling Points.

UNIT III Chromatographic Techniques:

Column Chromatography- principle, types of adsorbents, preparation of the column, elution, recovery of substances and applications.

TLC- principle, choice of adsorbent and solvent, preparation of chromatoplates, R_f - values, factors affecting the R_f-values. Significance of R_f-values.

Paper Chromatography- principle, solvents used, development of chromatogram, ascending, descending and radial paper chromatography. Paper electrophoresis- separation of amino acids and other applications.

UNIT IV Thermo analytical Methods:

Principle - thermo gravimetric analysis and differential thermal analysis-discussion of various components with block diagram-TGA & DTA curves of $CuSO_4.5H_2O$ and $Ca(OOCCH_3)_2.H_2O$ - Simultaneous DTA-TGA curves of and $CaC_2O_4.H_2O$ in air and in CO_2- factors affecting TGA & DTA curves.

Thermometric titrations-principle and experimental details.

UNIT- V

Colorimetric analysis: Laws of colorimetry, instrumentation, photo electric colorimetric method, operation and application(Estimation of Ni and Fe)

Analytical electrochemistry : Potentimetry (redox titration), Conductometry (Acid – base & Precipitation titration), Electrogravimetry (Estimation of copper and silver).

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Able to handle the Possible analytical instruments.	**8**
CO-2	Able to apply various chromatographic techniques	**9**
CO-3	Importance of thermal and electro analytical methods of analysis	**8**
CO-4	Qualitative and quantitative measurements	**6**

TEXT BOOKS AND REFERENCE BOOKS:

1. Bassett.J, Denney.R.C, Jaffery.G.H and Mendhan.J, Vogel's Hand Book of Quantitative Inorganic Analysis ELBS-Longman.
2. Furniss. B.S, Hannaform. A.J, Rogers.V, Smith.P.W.G, and Tatchell.A.R, Vogel's Text Books of Practical Organic Chemistry.
3. Douglas A, Skoog and Donal M. West Hort, Fundamentals of analystical Chemistry Rinechan and Winston Inc., New York.
4. Janarthanam.P.B, Physico – Chemical Techniques of Analysis Vol I & II – Asian Publishing House Bombay.

5. William Kemp, Organic Spectroscopy – ELBS.
6. Venkateswaran.V, Veerasamy.R, and Kulandaivelu.R, Basic Principles of Practical Chemistry.
7. Sharma.Y.R, Elementary Organic Spectroscopy, Principles and applications- S. Chand & Co.,

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

INORGANIC CHEMISTRY – II

Semester: VI Credits: 4

Paper Code: 18U6CH10 Hours/week: 5

UNIT I Inorganic Chemistry:

Bioinorganic Chemistry-Essential and trace elements Na, Mg, K in Biological processes- Biological role of Hemoglobin and Chlorophyll (elementary idea of structure and mechanism of their action)

Metal carbonyls-Bonding in carbonyls-Mono and binuclear Carbonyls of Ni, Fe, Cr, Co and Mn-Hybridisation and structure. Preparation, properties and uses.

Silicates-classification and structure–examples. Composition, properties and uses of beryl, asbestos, talc, mica, feldspar, ultramarines and zeolite.

UNIT II Organometallic compounds:

Definition-classification-ionic-bonded and non classically bonded organometallic compounds-examples- nature of carbon-metal bond.

Olefin complexes –Zeise's salt –synthesis and structure, 18 electron rule, allyl, acetylene, carbene, carbyne and sandwich complexes-structure & properties.

Cyclopentadienyl complexes –Ferrocene preparation, properties, structure and uses.

Organometallic compounds of Lithium & Boron preparation, properties, structure and uses. Uses of organometallic compounds.

UNIT-III Solids:

Solids: Band theory of conductors , semiconductors and insulators

Bragg's law and application of X-ray diffraction to crystal studies-structure of NaCl, LiCl and ZnS.

Imperfections in a crystal-Outline of Schottky defects, Frenkel defects, metal excess and metal deficiency defects and line defects.

UNIT IV Solid State:

4.1 The Solid State - Difference between crystalline and amorphous

solids isotropy and anisotropy-interfacial angles, symmetry in crystal systems, elements of symmetry-space lattice

and unit cell-Bravis lattices- Law of rational indices-Miller indices-X ray diffraction-Bragg's equation Experimental methods.

UNIT – V.NANOTECHNOLOGY

Basics of nanoscience and nanotechnology – chemistry of nanoparticles – nanotechnology –Methods of synthesis of nano materials –plasma arching, sol gels –applications of nano chemistry –catenanes –carbon nanotubes –types-synthetic methods-fullerene-its properties.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Gain the knowledge about the bonding and structure of organometallic compounds.	**2**
CO-2	Understand the basic concepts and classification of nanomaterials.	**8**
CO-3	Introduce bio-inorganic chemistry and analyze the role of metal ions in biological processes.	**8**
CO-4	Study the common properties and size dependent absorption behavior of nanomaterials.	**9**

Text books and reference books:

1.Soni.P.L, Text Book of Inorganic Chemistry, Sultan Chand & Sons.

2.Puri and Sharma, Text book of Inorganic Chemistry-Vishal publishing co.

3.Madan.R.D., Inorganic Chemistry, S. Chand & Co.,

4.Morrison and Boyd, Organic Chemistry, Allyn and Bacon.

5.Bhal. B.S, and Arun Bhal, A Text book of Organic Chemistry.

6.Soni.P.L., Text Book of Organic Chemistry, Sultan Chand andSons.

7.Gurudeep R. Chatwal, Physical Chemistry.

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

ORGANIC CHEMISTRY –II

Semester: VI | Credits: 4

Paper Code: 18U6CH11 | Hours/week: 5

UNIT I Molecular rearrangements:

Classification as anionotropic, cationotropic , intermolecular and intramolecular. Mechanisms of pinacol-pinacolone, Beckmann, benzidine, Hofmann, Curtius, Lossen, Schmidt, benzilic acid, Fries and Cope rearrangements.

UNIT-II Reaction Mechanism:

Mechanism of-Kolbe's reaction-Reimer-Tiemann reaction-Gattermann, Lederer-Manasse and Houben-Hoesch reactions. Addition to Carbon –heteromultiple bond - Addition of HCN, NH_2OH, 2,4- dinitrophenyl hydrazine, semicarbazide & Grignard reagent . Mechanisms of Mannich, Stobbe, Darzen, Wittig and Reformatsky reactions.

Mechanism of reduction of carbonyl group by NaBH4, LiAlH4 –Wolf-Kishner, Clemmensen and MPV reductions. Carbonyl polarization-Reactivity of carbonyl group-acidity of carbonyl group- Haloform reaction-mechanism.

UNIT III - Heterocyclic Compounds:

General classification-aromatic and non-aromatic heterocyclic. Molecular orbital picture and aromatic characteristics of pyrrole, furan, thiophene and pyridine. Preparation, properties and uses of furan, pyrrole & thiophene.

Synthesis and reactions of pyridine and piperidine comparative study of basicity of pyrrole, pyridine and piperidine with amines.

UNIT IV Carbohydrates:

Classification-Monosaccharide-Reactions of Glucose and Fructose-osazone formation. Constitution of glucose and fructose-open chain structure-Configuration and ring structure-mutarotation-determination of ring size. Haworth's projection formulae and conformation of monosaccharide.

Interconversions of monosaccharides-epimerisation-conversion of pentose to hexose and vice versa-aldose to ketose and vice versa.

Disaccharides-structural elucidation of sucrose and maltose.

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UNIT-V Vitamins and Antibiotics:

Vitamins-occurrence and biological importance of Vitamin A, Thiamine, Riboflavin, Pyridoxin and Ascorbic acid. – Synthesis and structural

elucidation of thiamine and ascorbic acid.

Antibiotics-structural elucidation of penicillin-G and chloromycetin.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	To acquire knowledge in molecular rearrangement.	**5**
CO-2	To attain more knowledge in reaction and its mechanism.	**7**
CO-3	To understand the application of carbohydrates, vitamins and antibodies	**9**

TEXT BOOKS AND REFERENCE BOOKS:

1. Finar 1.L. Organic Chemistry, Vol I and II – ELBS.
2. Morrison and Boyd, Organic Chemistry, Allyn and Bacon Inc.
3. Solomons, T.W.G, Organic Chemistry, John Wiley.
4. Bhal. B.S, and Arun Bhal, A Text book of Organic Chemistry.
5. Soni.P.L., Text Book of Organic Chemistry, Sultan Chand andSons.
6. Tiwari, Malhotra and Vishoni, Organic chemistry, Vol I and II,Vikas Publishing House.
7. Raj K. Bansal, A Text Book of Organic Chemistry, Wiley Eastern.

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

PHARMACEUTICAL CHEMISTRY

Semester: VI | Credits: 5

Paper Code: 18U6CH12 | Hours/week: 5

UNIT-I

1.1.Definition of the terms-drug, pharmacophore, pharmacodynamics, pharmacopoea, pharmacology, bacteria, virus, fungus, actinomycetes, metabolites, antimetabolites, LD50, ED50. 1.2.Therapeutic index-their use in selecting drugs-Assay of drugs various methods.

1.3.Medicinally important compounds- Al, As and Fe- their preparation and applications.

UNIT-II

Sulphonamides-mechanism and action of sulpha drugs preparation and uses of sulphadiazine, sulphathiazole, sulphapyridine and sulphafurazole.

Antibiotics-Definition-classification as broad and narrow spectrum antibiotics-penicillin, ciphalosporin, ampicillin, erythromycin-structure and mode of action only (no structural elucidation, preparation, assay).

UNIT-III

Analgesics-definition and actions-narcotic and non narcotic-morphine and its derivatives- pethidine and methodone pharmacological action-uses-Heroin and codeine.

Antipyretic analgesics-salicylic acid derivatives-methyl salicylate, aspirin, p-aminophenol derivatives-paraacetamol, phenacetin and ibuprofen.

UNIT –IV

Antiseptics and disinfectants – definition and distinfectant phenolic compounds-Dyes - crystal violet, acridine, Chloro compound-chlorhexidine, Cationic surfactants-Benzalkonium chloride, formaldehyde and nitrofurazone.

Anesthetics-definition-classification-local and generalvolatile, nitrous oxide, ether, chloroform, cyclopropane-uses and disadvantages – nonvolatile – intravenous - thiopental sodium, methohexitone, propanidid-local anesthetics -cocaine and benzocaine.

Antianaemic drugs-iron, vitamin B12 and folic acid-mode of Action

UNIT-V

Drugs affecting CNS-definition, examples for tranquilisers, sedatives, hypnotics, psychotric drugs-chlorpromazine and its derivatives, barbitone.Hypoglycemic agents-sulphonyl urea, biguanides.

Cancer therapy-mode of action of thiotepa, cyclophosphoramide, cisplatin, 5-flurouracil ,use of phytochemicals in cancer therapy-Taxol ,Vincrystin. Composition of blood plasma-functions of hemoglobin, transport of oxygen and maintenance of pH of blood. Analysis of hemoglobin in blood. Rh factor, blood pressure- normal; high, low and control.

Course Outcomes

CO No.	Upon completion of this course , students will beable to	PSOs addressed
CO-1	To familiarize the basic classification of drugs	**5**
CO-2	To learn about the structure and synthesis of antibiotics.	**7**
CO-3	Understand the chemistry of drug molecules.	**8**

Text books and reference books:

1. Singh.H and Kapoor.V.K, Vallabh Prakashan Organic Pharmaceutical Chemistry – New Delhi.
2. Bentley and Drivers, Pharmaceutical Chemistry.
3. Allion Chidambaram, Pharmaceutical Chemistry.
4. Chatwal, Organic Pharmaceutical Chemistry.
5. Jayashree Ghosh, S, Pharmaceutical Chemistry – Chand & Co.,

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

C.C SPECTROSCOPY-II

Semester: VI **Credits 2**

Paper Code: 18U6CH13 **Hours/week: 2**

UNIT I ^{1}HNMR Spectroscopy

NMR Spectroscopy-principle of nuclear magnetic resonance – basic instrumentation- number of signals-chemical shift- shielding and deshielding proton-spin-spin coupling and coupling constants-TMS as NMR standard.

UNIT II Application Of ^{1}HNMR Spectroscopy:

Interpretation of NMR spectra of simple organic compounds such as Acetone, Anisole, Benzaldehyde, Ethyl acetate, Ethylamine, Ethyl Bromide, Toluene and Isopropyl phenyl ketone.

UNIT III Mass Spectroscopy:

Mass spectroscopy-Basic principles- instrumentation molecular ion peak, base peak, metastable peak, isotopic peak- their uses. Nitrogen rule- ring rule.

UNIT IV Application Of Mass Spectroscopy:

Interpretation of mass spectra of simple organic compounds such as Acetone, Anisole, Benzaldehyde, Ethyl acetate, Ethylamine, Ethyl Bromide, Toluene and Isopropyl phenyl ketone.

UNIT V E.S.R.Spectroscopy:

E.S.R.Spectroscopy-condition-theory of ESR spectra-hyperfine splitting-esr spectra of simple radicals CH_3,CD_3,Benzene,Naphthalene radical ions only.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	To know the detail study of NMR Spectroscopy	**9**
CO-2	To acquire knowledge in principle and application of mass spectroscopy.	**8**

CO-3	To study and apply of simple molecules in ESR spectra.	**9**

Text books and reference books:

1. Bassett.J, Denney.R.C, Jaffery.G.H and Mendhan.J, Vogel's Hand Book of Quantitative Inorganic Analysis ELBS – Longman.
2. Furniss. B.S, Hannaform. A.J, Rogers.V, Smith.P.W.G, and Tatchell.A.R, Vogel's Text Books of Practical Organic Chemistry.
3. Douglas A, Skoog and Donal M. West Hort, Fundamentals of analystical Chemistry Rinechan and Winston Inc., New York.
4. Janarthanam.P.B, Physico – Chemical Techniques of Analysis Vol I & II – Asian Publishing House Bombay.
5. William Kemp, Organic Spectroscopy – ELBS.
6. Venkateswaran.V, Veerasamy.R, and Kulandaivelu.R, Basic Principles of Practical Chemistry.
7. Sharma.Y.R, Elementary Organic Spectroscopy, Principles and applications- S. Chand & Co.,

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

ELECTIVE PAPER-III-PHYSICAL CHEMISTRY-II

Semester: VI **Credits 4**

Paper Code: 18U6CHE03 **Hours/week: 4**

UNIT-I Phase Rule:

Definition of terms-Phase, component, degree of freedom -Derivation of phase rule - One component systems-H_2O system, Sulphur system and CO_2 system.

Two component systems-solid liquid equilibria-reduced phase rule – simple eutectic systems-Ag-Pb only-Compound formation with congruent melting point-Mg-Zn system only. Peritectic change-$FeCl_3$-H_2O system, C.S.T-Phenol water system only. Effect of impurities on CST.

UNIT – II Electro chemistry:I

Metallic and electrolytic conductance –Definitions of specific, equivalent and molar conductance's – Relations between them – measurement of conductance and cell constant.

Kohlrausch's law – applications – calculation of equivalent conductance for weak electrolytes -Migrations of ions – transport number – determination by Hittorf and moving boundary methods.

UNIT III Electrochemistry:II

3.1. Theory of strong electrolytes – Debye – Huckel – Onsager theory – verification of Onsager equation – Wien and Debye – Falkenhagen effect.
Activity and activity co-efficient of strong electrolytes – ionic strength.

Ostwald's dilution law – determination of dissociation constants – Ionic product of water – pH value.

Buffer solution – Henderson's equations – uses of Buffers including living systems – common ion effect – solubility product principle – relation to solubility – Applications in qualitative and quantitative analysis.

UNIT IV Electrochemistry-III

Galvanic cells – Reversible and Irreversible cells – EMF and its measurement – Weston Standard cell – types of reversible single electrodes –

standard Hydrogen electrode –calomel electrode – Derivation of Nernst equation both for emf of cells and single electrode potentials – Nernst theory for single electrode potential – standard reduction potentials – electro chemical series – significance.

Application of emf measurements – Application of Gibbs – Helmholtz equation to galvanic cells – calculation of thermodynamic quantities – pH using hydrogen, quinhydrone and glass electrodes – Potentiometric titrations.

UNIT V

Symmetry Elements and Symmetry operations – Point groups-Point groups of simple molecules like H_2, HCl, CO_2, H_2O, BF_3, NH_3,CH_2Cl_2, $[PtCl_4]_2$, PCl_5, Cis and trans isomers of [$Pt(NH_3)_2$ Cl_2]

Magnetic properties of molecules: Magnetic susceptibility. Types of magnetic behaviors- diamagnetism and Para magnetism, Ferromagnetism and antiferro magnetism- determination of magnetic moment using Guoy Balance.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Basic concepts of electrochemistry and its applications.	**3**
CO-2	To understand the laws of electrochemistry.	**3**
CO-3	Basic concepts of magnetic properties and Point groups.	**2**

TEXT BOOKS AND REFERENCE BOOKS:

1. Glasstone.S, Text Book of Physical Chemistry, Mac Millian.
2. Glasstone and Lewis, Elements of Physical Chemistry, Mac Millan.
3. Maron and Lando, Fundamentals of Physical Chemistry, Collier, MacMillan.
4. Castellan. G.W, Physical Chemistry, Naropa Publishing House.
5. Walter J. Moore, Physical Chemistry, Orient Longamann.
6. Rakshit.P.C, Physical Chemistry, Science Book Agency.

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DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

NON MAJOR ELECTIVE COURSE-I

DAIRY CHEMISTRY

Semester- III/IV **Credits 2**

Paper Code: 18UCHN01 **Hours/week: 2**

Course Objectives

- To gain an understanding of the compositions and properties of milk.
- To gain an understanding of dairy processing technologies.
- To understand dairy products.
- To understand the application of dairy.

UNIT I :

Milk:General composition of milk factors affecting the gross composition of milk, physico-Chemical change taking place in milk due to processing parameters-boiling pasteurization- sterilization and homogenization.

UNIT II

2.1Milk lipids-terminology and definitions

2.2.Milk proteins:. Physical properties of milk proteins-Electrical properties and hydration, solubility. Reaction of milk proteins with formaldehyde and ninhydrin.

2.3.Milk carbohydrate-Lactose- Estimation of lactose in milk. Milk vitamins-water and soluble vitamins, effect of heat and light on vitamins.

2.4.Ash and mineral matters in milk.

UNIT III :

Creams : Definition-composition-chemistry of creaming process gravitational and centrifugal methods of separation of cream-Factors influencing cream separation (Mention the factors only)-Cream neutralization. Estimation of fat in cream.

Butter : Definition-% composition-manufacture-Estimation of fat, acidity, salt and moisture content-Desi butter.

UNIT IV :

Milk Powder : Definition-need for making Powder-drying process praying,drum drying, jet drying and foam drying-principles involvedin each. Manufacture of whole milk Powder by spray drying process-keepingquality of milk Powder.

Ice cream : Definition-percentage composition-types- ingredients needed -manufacture of ice-cream stabilizers-emulsifiers and their role.

UNIT V :

Dairy Detergents : Definition-characteristics-classification-washing procedure (modern method) sterilization-chloramines-T and hypochlorite solution.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Study the compositions and properties of milk.	**8**
CO-2	gain an understanding of dairy processing technologies.	**10**
CO-3	Gathering about dairy products.	**5**

Reference Books

1. Outlines of Diary Technology-Sukumar De
2. Principles of Dairy Chemistry-Robert Jenness & S.Patorn.
3. Indian Diary products-K.S. Rangappa and K.T. Achaya.

DEPARTMENT OF CHEMISTRY
NON MAJOR ELECTIVE COURSE-II
TEXTILE CHEMISTRY

Semester- III/IV **Credits 2**
Paper Code: 18UCHN02 **Hours/week: 2**

Course Objectives

- To study the classification, structure, properties and application of fibers.
- To study the process of synthetic fibers.

UNIT I :

General classification of fibers-chemical structure, production, properties and uses of the following natural fibers (a) natural cellulose fibers (cotton and jute) (b) natural protein fiber (wool and silk).

UNIT II :

Chemical structure, production, properties and uses of the following synthetic fibers.

(i) Manmade cellulosic fibers (Rayon, modified cellulose fibers) (ii) Polyamide fibers (different types of nylons) (iii) Poly ester fibers.

UNIT III :

Impurities in raw cotton and grey cloth, wool and silk- general principles of the removal

– Scouring – bleaching – Desizing – Kierboiling- Chemicking.

UNIT IV

Dyeing - Dyeing of wool and silk –Fastness properties of dyed materials – dyeing of nylon, terylene and other synthetic fibers.

UNIT V

Finishing- Finishes given to fabrics- Mechanical finishes on cotton, wool and silk, method used in process of mercerizing –Anti-crease and Anti-shrink finishes –Water proofing.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed

CO-1	Illustrate the structure and understand the properties,	**10**

	application of fibers.	
CO-2	Understand the process of Dyeing.	**7**
CO-3	Study the classification, structure, properties and application of fibres.	**10**

Reference

1. Chemical Technology of fibrous Materials – F.sadov, M.Horchagin and A.Matetshy, Mir Publishers.
2. The Identification of Textile Fibres – Bruno Nuntak.
3. Introduction to Textile Science -3rd edition, Maryory L.Joseph.
4. Textile Chemistry –Vol.II R.H.Peters, Elserier, Avesterdam.
5. Dyeing and chemical Technology of Textile fibres-5th Edition, E.R.Trotman,Charles Griffin & Co Ltd
6. Chemistry of dyes & Principles of Dyeing -V.A.Shenai, Sevak Publications.
7. Scouring and Bleaching E.R.Trotman, Charles Griffin & Co Ltd.
8. Text Book of Applied Chemistry- K.Kapur.
9. A Students Text Book of Textile Science- A.J.Hall.

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DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

NON MAJOR ELECTIVE COURSE-V

MEDICINAL CHEMISTRY

Semester- III/IV **Credits 2**

Paper Code: 18UCHN03 **Hours/week:2**

Course Objectives

- To study the common diseases.
- To make awareness among the students on pharmaceutical chemicals and Their medicinal applications.
- To introduce the drugs and its factors among the students.
- To understand about on Diabetes and Blood pressure.
- To understand the basics in vitamins.

UNIT I-Introduction:

Common diseases – infective diseases – insect – borne, air – borne and water-borne
– hereditary diseases – Terminology – drug, pharmacology, antimetabolites, absorption of drugs
– factors affecting absorption –therapeutic index (Basic concepts only)

UNIT II-Drugs

Various sources of drugs, pharmacologically active constituents in plants, Indian medicinal plants – tulsi, neem, keezhanelli – their importance – Classification of drugs – biological chemical (Structure not required) Drug receptors and biological responses – factors affecting metabolism of drugs. (Basic concepts only)

UNIT III-Chemotherapy

Drugs based on physiological action, definition and two examples each of anesthetics- General and local – analgesics – narcotic and synthetic – Antipyretics and anti inflammatory agents – antibiotics – Penicillin, Streptomycin, Antiviral, AIDS – symptoms, prevention, treatment – Cancer (Structure not required)

UNIT IV-Common Body Ailments:

Diabetes – Causes, hyper and hypoglycemic drugs – Blood pressure – Systolic & Diastolic Hypertensive drugs – Cardiovascular drugs – depressants and stimulants – Lipid profile
– HDL, LDL cholesterol lipid lowering drugs. (Structure not required)

UNIT V-Health Promoting Drugs:

Vitamins A,B, C, D, E and K micronutrients – Na, K, Ca, Cu, Zn and I, Medicinally important inorganic compounds of A1, P, As, Hg and Fe, Examples and applications, Agents for kidney function (Aminohippuric acid). Agents for liver function (Sulfo bromophthalein), antioxidants, treatment of ulcer and skin diseases. (Structure not required).

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Study the common diseases.	**9**
CO-2	Set awareness among the students on medicinal applications. .	**10**
CO-3	Introduce the drugs and its factors among the students.	**5**
CO-4	Acquire more knowledge on Diabetes and Blood pressure.	**9**

Recommended Text Books and Reference Books

1.S.Lakshmi Pharmaceutical Chemistry, S.Chand & Sons, New Delhi, 2004

2.V.K. Ahluwalia and Madhu Chopra, -Medicinal Chemistry‖, Ane Books, New Delhi, 2008

3.P.Parimoo, – A Text Book of Medicinal Chemistry‖, CBS publishers, New Delhi, 2006

4.Ashutosh Kar, -Medicinal Chemistry‖, Wiley Eastern Ltd., New Delhi

5.David William and Thomas Lemke, Foyes Principles of Medicinal Chemistry, BI Publishers.

6.Romas Nogrady, Medicinal Chemistry, Oxford Univ. Press

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DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

NON MAJOR ELECTIVE COURSE III

INDUSTRIAL CHEMISTRY – I

Semester- III/IV **Credits 2**

Paper Code: 18UCHN04 **Hours/week: 2**

Course objectives

- To know about on fertilizers industry.
- To familiarize the students on sugar industry.
- To understand the effect of chemical explosives.
- To understand the leather industry.
- To analyze the effect on Pollution in water industry.

UNIT I Fertilizers

Fertilizers : Fertilizer industries in India, Manufacture of ammonia, ammonium salts, urea, superphosphate, triple superphosphate and nitrate salts.

UNIT II Sugar

Sugar : Cane sugar manufacture, recovery of sugar from molasses, sugar estimation-sugar industries in India.

UNIT III Chemical Explosives

Chemical Explosives : Preparation and chemistry of lead azide, nitroglycerine, nitrocellulose, TNT, RDX,Dynamite, cordite, picric acid, gun Powder, introduction to rocket propellants.

UNIT IV Leather Industry

Leather Industry : Curing, preservation and tanning of hides and skins, process of derailing and dyeing. Treatment of tannery effluents.

UNIT V Water Industry

Water Industry: Pollution of water by fertilizers, detergents, pesticides and industrial wastes, BOD,COD, thermal Pollution. Water Treatment – Ion exchange, electro dialysis, reverse osmosis, softening of hard water.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Acquire knowledge on fertilizers industry.	**10**
CO-2	nderstand the effect of chemical explosives.	**8**
CO-3	Understand the effect on Pollution in water industry.	**6**

Reference Books

1. B.N.Chakrabarty, Industrial Chemistry, Oxford & IBH Publishing Co, New Delhi, 1981.
2. B.K. Sharma, Industrial Chemistry, Goel Publishing House, Meerut.
3. P.P.Singh, T.M.Joesph, R.G.Dhavale, College Industrial Chemistry, Himalaya Publishing House, Bombay, 4th Ed., 1983

NON MAJOR ELECTIVE COURSE IV

INDUSTRIAL CHEMISTRY – II

Semester- III/IV **Credits 2**

Paper Code: 18UCHN05 **Hours/week: 2**

Course Objectives

- To familiarize the students on batteries.
- To acquire the knowledge on agrochemical
- To understand the fuel gases
- To study the industrial application in paints,cements,glass etc.,

UNIT I

Electrochemical Industries: Production of materials like chlorine, caustic soda ,sodium chlorate, perchlorates, Batteries – primary and secondary cells, solar cells, fuel cells.

UNIT II

Agrochemical industries: Important categories of insecticides, fungicides, herbicides, rodenticide, Mode of action and synthesis of common pesticides like gammexane, DDT, aldrin, Parathion, Malathion, Baygon,

UNIT III

Petroleum : Origin, refining, Cracking, reforming ,knocking and octane number, LPG, synthetic gas, synthetic petrol.

Fuel Gases: Large scale production, storage, hazards and uses of coal gas, water gas, producer gas, and oil gas.

UNIT IV

Paints & Varnishes: Primary constituents of paints, Dispersion medium (solvent), binder Pigments, formulation of paints and varnishes. Requirements of a good paint.

Cleansing Agents: Preparation of toilet and washing soaps, synthetic detergents-alkyl aryl sulphonates, ethanolamines, nonionic detergents, builders, additives, corrosion inhibitors.

UNIT V

Cement : Manufacture – Wet Process and Dry process, types, analysis of major constituents, setting of cement, reinforced concrete. Cement industries in India.

Ceramics: Important clays and feldspar, glazing and vitrification.

Glass: Composition and manufacture of glass .Types of glasses optical glass, coloured glasses and lead glass.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Attain more knowledge in batteries.	**3**
CO-2	Learn about the various fuel gases.	**6**
CO-3	acquire more knowledge about on industrial application on paints,cements,glass etc.,	**10**

Reference :

1. B.N.Chakrabarty, Industrial Chemistry, Oxford & IBH Publishing Co, New Delhi, 1981.
2. B.K. Sharma, Industrial Chemistry, Goel Publishing House, Meerut.
3. P.P.Singh, T.M.Joesph, R.G.Dhavale, College Industrial Chemistry, Himalaya Publishing House, Bombay, 4th Ed., 1983

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DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

NON MAJOR ELECTIVE COURSE-VI

FOOD CHEMISTRY

Semester- III/IV **Credits :2**

Paper Code: 18UCHN06 **Hours/week:2**

Course objectives

- To familiarize the students on food chemistry and food Poison.
- To acquire the knowledge on food additives and packaging of foods.
- To understand the food preservation methods.
- To study the basics in vitamins and minerals.

UNIT-I FOOD ADULTERATION

Sources of foods, types, advantages and disadvantages, constituents of foods, carbohydrate, protein, fats and, oils, colours, flavours,natural toxicants.

UNIT-II FOOD POISONING

Sources, causes and remedy- Causes and remedies for acidity, gastritis, indigestion and constipation

UNIT-III FOOD PRESERVATION AND PROCESSING

Food spoilage , courses of food spoilage, types of Food spoilage, food preservation ,preservation and processing by heating- sterilization, pasteurization.

UNIT-IV VITAMINS

Sources , requirement deficiency diseases of A, C, K, E1 and B6

UNIT-V MINERALS

Mineral elements in food-Principal mineral elements-source. Function-Deficiency and daily requirements-Na, K, Mg, Fe, S and P

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Learn on food chemistry and food Poison.	**10**
CO-2	Understand the effects food additives and packaging of foods..	**9**
CO-3	Acquire knowledge in application of vitamins and minerals.	**5**

Reference Books:

1. Seema Yadav : ―Food Chemistry‖ ,Anmol publishing (P) Ltd,New Delhi
2. Car H. Synder : – The Extraordinary Chemistry for ordinary things‖ ,John Wiley & sons inc..,New York,1992

Selvamm Arts & Science College (Autonomous) Namakkal

DEPARTMENT OF CHEMISTRY
B.Sc., CHEMISTRY

NON MAJOR ELECTIVE COURSE-VII

CHEMISTRY IN AGRICULTURE

Semester- III/IV **Credits 2**

Paper Code: 18UCHN07 **Hours/week: 2**

Course Objectives

- To understand physical and chemical properties of soils.
- To understand the role of fertilizers.
- To get knowledge about the manures in agriculture.
- To acquires knowledge about in effects of pesticides and Instectides.
- To acquire more about effects of fungicides and herbicides.

UNIT – I Fertilizers :

Fertilizers : Effect of Nitrogen, Potassium and phosphorous on plant growth – commercial method of preparation of urea, triple superphosphate. Complex fertilizers and mixed fertilizers – their manufacture and composition. Secondary nutrients – micronutrients – their function in plants.

UNIT – II Manures:

Manures : Bulky organic manures – Farm yard manure – handling and storage. Oil cakes.

Blood meal – fish manures.

UNIT – III Pesticides and Insectides :

Pesticides – classification of Insecticides, fungicides, herbicides as organic and inorganic

– general methods of application and toxicity. Safety measures when using pesticides. Insecticides : Plant products – Nicotine, pyrethrin – Inorganic pesticides – borates. Organic pesticides – D.D.T. and BHC.

UNIT – IV Fungicides and Herbicides :

Fungicide : Sulphur compounds, Copper compounds, Bordeaux mixture. Herbicides : Acaroids – Rodenticides. Attractants – Repellants. Preservation of seeds.

UNIT – V Soils:

Soils -Classification and properties of soils –soil water, soil temperature, soil minerals, soil acidity and soil testing.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Student gets knowledge about effects of fungicides and Herbicides.	**5**
CO-2	Acquire to handle pesticides and Insectides.	**10**
CO-3	Learns knowledge in using organic manures. .	**7**

Reference Books:

1. K. Bagavathi Sundari– "Applied Chemistry", MJP Publishers Chennai (2006).

2.Jayashree Ghosh, Fundamental Concepts of Applied Chemistry, First Edition S.Chand Company Ltd – New Delhi, 2006

DEPARTMENT OF CHEMISTRY
NON MAJOR ELECTIVE COURSE-VIII

POLYMER & PLASTICS (30 Hours)

Semester- III/IV **Credits 2**

Paper Code: 18UCHN08 **Hours/week:2**

Course Objectives

- To study the classification of Polymers.
- To know about the structure and properties of Polymers.
- To study the basics of rubber and resins.

UNIT-I

1.1.Basic concepts : An introduction to Polymers and macro molecules. Natural and synthetic Polymers. Classification of Polymers-addition and condensation Polymers. 1.2.General methods of preparation of Polymers. Polymerization through functional groups, multiple bonds and ring opening. Coordination Polymerization.

UNIT-II

Structure of Polymers- linear, branched and cross linked Stereochemistry of Polymers-Isotactic ,Syndiotactic and Atactic.

Properties of polymers : The crystalline melting Point. The glassy state and glass transition temperature.

UNIT-III

Copolymerization – Definitions – homo and copolymers. Block copolymers and Graft copolymers.

Molecular weight of Polymers. Number average molecular weight and weight average molecular weight. Determination of molecular weight by Viscosity and Osmometry methods.

UNIT-IV

Poly olefins-Polythene , PTFE , Freons ,PVC ,Polypropylene and Polystyrene.

Natural and synthetic rubbers.-Constitution of natural rubber. Butyl, Buna, Buna-S , Buna-N, Neoprene , SBR, Thiocol, Polyurethane and silicone rubbers.

UNIT-V

5.1.Plastics and Resins Definitions. Thermoplastic and thermosetting resins. Constituents of plastic-fillers, dyes, pigments, plasticizers, Lubricants and catalysts. Uses of thermoplastic resins and thermo setting resins.

Course Outcomes

CO No.	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Understand the classification of Polymers.	**10**
CO-2	Attain and illustrate the structure of Polymers.	**5**
CO-3	Acquire more knowledge in basics of rubber.	**7**

References:

1.V. R. Gowrikar ,N.V.Viswanathan : Polymer Science- Wiley Eastern Limited ,New Delhi. 1986

2. R.B.Seymour, Introduction to Polymer Chemistry, MC Craw Hill, New York 1971.

SELVAMM ARTS & SCIENCE COLLEGE

(AUTONOMOUS), NAMAKKAL

(Nationally Re- Accredited (2nd cycle) with "A" Grade by NAAC)

UGC Recognized 2(f) and 12(B) Institution

Affiliated to Periyar University, Salem

DEPARTMENT OF BIOTECHNOLOGY

SYLLABUS

CHOICE BASED CREDIT SYSTEM

SEMESTER PATTERN

B.Sc., BIOTECHNOLOGY

2018-2019 Onwards

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Vision:

Vision of this programme is to make industry ready competent, ethically engaged, professionals that can transform with a potential to innovate, invent for the benefit of society and environment as per the need and challenges.

Mission:

Regular updating of Course curricula as per the demand of Biotechnology industry and academia. Entrepreneurship skill development.

Programme Outcomes (UG)

PO 1: Communicate Effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.

PO 2: **Environment Concern** - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Selvamm Arts and Science College, Namakkal (Autonomous)

Department of Biotechnology Choice Based Credit System Course

Structure of B.Sc. Biotechnology

Sem	Part	Paper	Paper Code	Title of the Paper	Hrs	Credit	Internal Mark	External Mark	Total Marks
I	I	Language Paper-I	18U1FTA01	Tamil-I	5	4	25	75	100
	II	Language Paper-II	18U1FEN01	English-I	5	4	25	75	100
	III	Core paper -I	18U1BT01	Cell Biology	6	5	25	75	100
	III	Allied paper-I	18U1BCA01	Biochemistry-I	6	4	25	75	100
	III	Core Practical-I	18U1BTP01	Lab in Cell Biology	3	2	40	60	100
	III	Allied Practical-I	18U1BCAP01	Lab in Biochemistry	3	-	-	-	-
	IV		18U1VE01	Value Education: yoga	2	1	25	75	100
				Total Hrs	**30**	**20**	**165**	**435**	**600**
II	I	Language paper-I	18U2FTA02	Tamil-II	5	4	25	75	100
	II	Language Paper-II	18U2FEN02	English-II	5	4	25	75	100

	III	Core paper -II	18U2BT02	Genetics	6	5	25	75	100
	III	Allied paper-II	18U2BCA02	Biochemistry-II	6	4	25	75	100
	III	Core Practical-II	18U2BTP02	Lab in Genetics	3	2	40	60	100
	III	Allied Practical-I	18U1BCAP01	Lab in Biochemistry	3	3	40	60	100
	IV		18U2ES02	Environmental Studies	1	1	25	75	100
	IV		18U2VE02	Value of life	1	1	25	75	100
	Total Hrs				**30**	**24**	**230**	**570**	**800**
III	I	Language Paper-I	18U3FTA03	Tamil-III	5	4	25	75	100
	II	Language Paper-II	18U3FEN03	English-III	5	4	25	75	100
	III	Core paper-III	18U3BT03	Fundamentals of Microbiology	6	5	25	75	100
	III	Allied paper-III	18U3BTA03	Marine Biotechnology	5	4	25	75	100
	III	Core Practical-III	18U3BTP03	Lab in Microbiology	4	4	40	60	100
	IV	SBEC-I	18U3BTS01	Plant &Animal Physiology	2	2	25	75	100

	IV	NMEC-I	18U3BTN01	Applied Biotechnology	2	2	25	75	100
Total Hrs					**29**	**25**	**190**	**510**	**700**
IV	I	Language Paper-I	18U4FTA04	Tamil-IV	5	4	25	75	100
	II	Language Paper-II	18U4FEN04	English-IV	5	4	25	75	100
	III	Core paper-IV	18U4BT04	Molecular Biology	6	5	25	75	100
	III	Allied paper-IV	18U4CSA04	Computer Application in Biology	5	3	25	75	100
	III	Core practical-IV	18U4BTP04	Lab in Molecular Biology	4	4	40	60	100
	III	Allied Practical-II	18U4CSAP02	Lab in Computer Application in Biology	3	1	40	60	100
	III	SBEC-II	18U4BTS02	Pharmaceutical Biotechnology	2	2	25	75	100
	III	NMEC-II	18U4BTN02	Concept of Biotechnology	2	2	25	75	100
				Total Hrs	**32**	**25**	**230**	**560**	**800**
V	I	Core paper-V	18U5BT05	Genetic Engineering	6	5	25	75	100
	II	Core paper-VI	18U5BT06	Plant Biotechnology	6	4	25	75	100
	III	Core	18U5BT07	Environmental	6	4	25	75	100

		paper-VII		and Industrial Biotechnology					
	III	Elective-I	18U5BTE01	Bio-Nanotechnology & Biostatistics	5	4	25	75	100
	III	Elective-II	18U5BTE02	Medical Biotechnology	4	4	25	75	100
	III	Core practical-V	18U5BTP05	Lab in Genetic Engineering, Plant Biotechnology and Industrial Biotechnology	3	2	40	60	100
				Total Hrs	**30**	**23**	**180**	**420**	**600**
VI	I	Core paper-VIII	18U6BT08	Animal Biotechnology	6	4	25	75	100
	II	Core paper-IX	18U6BT09	Immunology	6	4	25	75	100
	III	Core paper-X	18U6BT10	Stem cell &Regenerative medicine technology	6	4	25	75	100
	III	SBEC-III	18U6BTS03	Bioinformatics & Intellectual property rights	2	2	25	75	100
	III	Core practical-	18U6BTP06	Lab in Immunology,	3	2	40	60	100

		VI		Animal Biotechnology and BIPR					
	IV	Elective-III	18U6BTE03	Biophysics &Bioinstrumentation	4	4	25	75	100
	IV		18U6STE01	Skill (LSRW) Through English	2	1	25	75	100
			18U5EX01	Extension Activity	-	2	-	-	-
Total Hrs					**29**	**23**	**230**	**485**	**700**
Grand Total					**180**	**140**	**1200**	**3000**	**4200**

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Programme Specific Outcomes:

PO.No	**Upon completion of B.Sc Degree programme , the graduates will b able to**
PSO 1	Study of fundamental organization of life and how is deteriorating their normal role at molecular level
PSO 2	It helps to learn to produce products that are advance in healthcare, medicine, agriculture, food, pharmaceuticals and environment control.
PSO 3	Introduce desired gene into host organism, to identify effective antibiotics, increase the yield of plants andadopt in dormancy condition such as drought, humidity, and high temperature, cold.
PSO 4	Isolate, purify and characterize biological samples using sophisticated analyticalexperimental techniques.
PSO 5	Design process equipment, plants, biosensors and recombinant molecules for Biotechnological and allied processes.
PSO 6	Apply research based knowledge and biotechnological methods to investigate complex biological problems
PSO 7	Bioinformatics tools play on crucial role in initial drug development, Evaluate the mechanism of drug action
PSO 8	Understand the handling of harmful pathogens, chemicals and their safety in biotechnology laboratory
PSO 9	Identify nano sized material and their role in molecular level and inhibit harmful disease and Cure the genetically disorder with help of gene therapy, r DNA technology
PSO 10	Assess personal, product and environmental safety, health, intellectual property rights, Ethical and socialResponsibilities related to modern biotechnological research and development

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

CORE I: Cell Biology

Semester – I **Hrs/week: 6**
Course Code: 18U1BT01 **Credits: 5**

Course Objective:

To provide knowledge about the morphology, structure and functions of various cells at molecular level.

Unit I – Cell Types and Composition

Cell as a Basic unit; Classification of cell types; Cell theory; Organization of plant and animals cells; Comparison of Microbial, Plant and Animal cells; Biochemical composition of cells& their Biological Significance .

Unit II- Cell Organelles

Ultra structure of cells; Sub cellular Organization; structure and function of cell membranes, cell wall, Cytosol, Endoplasmic reticulum, mitochondria, Chloroplast, vacuoles, Microtubules, Peroxisomes and Lyzosome.

Unit III– Chromosomes Types

Chromosomes: Morphology, Structural Organization, ultra structure of nucleus and nuclear membrane, chromosome, Karyokinetics specialized chromosomes; salivary gland and lamp brush chromosomes.

Unit IV- Cell Division And Its Cycle

Cell division (Eukaryotes and Prokaryotes), Mitosis, Meiosis and Cell Cycle.

Unit V – Specialized Cells

Specialized cells: Motile cells (Amoeboid, Ciliary, Flagellar Movements), nerve cells and muscle cells. Cell signaling and Cell -Cell interaction.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
Co-1	Students understand the molecules of life and how the cell has evolved with period of time.	1
Co-2	The structure and functions of cell and the various cell organelles at molecular level are explained in detail.	6
Co-3	Students are taught about chromosomes structure and types.	1
Co-4	Student understand the principles of cell division and cell cycle	10

Text Books:

1. Molecular cell biology- **Lodish ,Berk;** 5 th Edition
2. Cell Biology- **Powar.C.B,** Himalaya publishing house, New Delhi. Edition - 3;1983

References:

3. Cell Biology- **DeRoberties,** Blaze publishers & Distributors Pvt.Ltd.,NewDelhi.
4. Cell Biology - **Jack D Bruke**, the William Twilkins Company.
5. Cell Biology - **Ambrose &Dorouthy M Easty**, ELBS Publications.
6. Fundamentals of Cytology – **Sharp,** McGraw Hill Company.
7. Cytology – **Wilson &Marrison,** reinform Publications.
8. Cell and Molecular biology concepts and experiments- **Gerald Karp;** 4 th Edition.
9. Cell biology Organelle Structure and function- **David.Sadava;** Panima Indian Editio

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Allied -Biochemistry –I

Semester-I **Hrs\Week:6**

Course Code: 18U1BCA01 **Credit: 4**

Course Objective:

To understand the basis of macromolecules and their structure

Unit-I Carbohydrates

Carbohydrates: Introduction, classification , monosaccharide-structure, stereo isomerism, structural isomers,Mutarotation and chemical reactions. Oligosaccharides, Disaccharides Structure and importance of sucrose, lactose and Maltose.Polysaccharide- Structure and application of homopolysaccharide and heteropolysaccharide.

Unit-II- Lipids

Lipids-classification, physical and chemical properties, Saturated and unsaturated fatty acids.

Unit-III – Amino Acids

Amino acids-classification, Essential&non essential amino acids, structure& properties. Proteins-definition, classification &functions(Primary and secondary structure of protein.

Unit-IV - Vitamins

Vitamins –classification, occurrence, deficiency, symptoms, biochemical functions of fat soluble and water soluble vitamins

Unit-V - Enzymes

Enzymes –definition, classification with example, active site, lock&key model, induced fit hypothesis. Enzyme units-kinetics- Enzyme inhibition, Iso-enzymes, Co-enzymes, Factors affecting enyme activity.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
Co-1	To study about carbohydrate chemistry and its types	4
Co-2	The structure and Properties of Lipids are explained in detail.	6
Co-3	To learn about structure and properties of amino acids and proteins	7
Co-4	Student understand in detail about vitamins	2
Co-5	The progression and role played by Enzymes	7

Text Books:

1. Principles of Biochemistry- **David. L. Nelson, Michael M. Cox, Lehninger**

2. Biochemistry- **U. Sathyanarayana**, **Chakrapani;** Edition 2 ;2007 Books and allied (P) Ltd.,

Reference Books:

1. Jain JL (2003).fundamentals of biochemistry,S.chand&companyLtd.,New Delhi.

2. Deb A.C.,(2004), concepts of biochemistry, (Theory and Practical), Books and Allied (p) Ltd., Kolkata.

3. Satyanarayana U (2005). Essentials of Biochemistry,Books and Allied (p) Ltd., Kolkata.

4. Veerakumari L (2004). Biochemistry. MJP Publishers, A Unit of Tamil Nadu Book House,Chennai.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

VALUE EDUCATION- YOGA

SEMESTER-I **Hrs\week:2**

Course Code: 18U1VE01 **Credit:1**

Objectives:

- To improve concentration of the individual
- To improve patience power
- To improve balance and coordination of our body
- Learn to relax at will

UNITS	TITLE OF THE PAPER	Hrs of Instruction
Unit- I Yoga and physical health	1.1 Physical structure of human body	(6 hours)
	1.2. Simplified physical exercises	
	1.3 Maharasanas	
	1.4 Yogasanas	
Unit-II Arts of Nurturing life force and Mind	2.1 Maintaining youthfulness	(6 hours)
	2.2 Sex and spirituality	
	2.3 Ten stages of Mind	
	2.4 Mental frequency	
Unit-III Sublimation	3.1 Purpose of life	(6 hours)
	3.2 Analysis of Thought	
	3.3 Moralization of Desire	

	3.4 Neutralization of Anger	
Unit- IV Human resource development	4.1 Eradication of Worries	(6 hours)
	4.2 Benefits of Blessings	
	4.3 Greatness of Friendship	
	4.4 Individual Peace	
Unit- V Law of Nature	5.1 Cause and Effect System	(6 hours)
	5.2 Purity of thought and Deed	
	5.3 Love and Compassion	
	5.4 Cultural Values	
	TOTAL	30 hours

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Core Practical I: Lab in Cell Biology

Semester – I **Hrs/Week: 3**

Course Code: 18U1BTP01 **Credit: 2**

Course Objective:

To get hands on experience on basic microscopy and its principles and functioning.To impart knowledge about various cell organelles and cell division

1. Microscope and its parts.
2. Operation of light and compound microscopes.
3. Micrometry - Stage and Ocular Micrometer.
4. Identification of Blood Cells.
5. Cell counting – Heamocytometer.
6. Separation of cell organelles by centrifugation.
7. Mitosis in Onion root tip squash.
8. Meiosis in grasshopper testis squash.
9. Meiosis in Flower Buds.
10. Chironomous - Salivary gland Chromosome squash preparation.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Core II: Genetics

Semester – II **Hrs/Week: 6**

Course Code: 18U2BT02 **Credit: 5**

Course Objective:

To provide the knowledge from the fundamental aspects of Genetics till the molecular level

Unit I – Law of Inheritance

Mendel's laws of inheritance; Non-Mendelian inheritance; Chromosomal theory of inheritance.

Unit II – Chromosome and Mutations

Chromosome structure in bacteria, Plants and Animals, Chromosomal aberrations Structure. Mutations – Spontaneous and induced: chemical and Physical mutagens.

Unit III - Plasmids and Transposable Elements

Fundamentals of Microbial genetics – Types of plasmids, (F plasmids; a conjugate plasmid, mobilization of Non conjugative Plasmid, R- Plasmid, Col plasmid, copy number and incompatibility) Episomes, Transposable elements(IS and transpons, Integrons and antibiotic – Resistance cassettes, multiple antibiotic resistant bacteria ,MU – Virus)

Unit IV – Mechanism of Gene Transfer

Bacterial genetics(Mutant phenotype, DNA mediated transformation, conjugation, (co-integrate formation and Hfr cells, Time of entry,Mapping,F-Plasmid)Transduction(Generalized transduction, specialized transduction). Gene mapping, one gene – one enzyme hypothesis. Genome organization in Bacteria, Plant and Animal: DNA & Plasmid replication, Recombination.

Unit V – Genetic Disorders

Genetic diversity, Genetic diseases, and Prenatal diagnosis: Genetic counseling: Population genetics, Quantitative genetics.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO – 1	To understand the basic handling of Microscopes	1
CO – 2	To learn about operating procedure of microscope	5
CO – 3	To be well versed in Micrometry.	5
CO – 4	Student learnt about the practical method of cell counting	1
CO – 5	To learn about the separation method of cell organelles	1
CO – 6	Visualize different stages of mitosis on onion root tip	1
CO – 7	Visualize different stages of meiosis	1
CO – 8	To learn about the chromosome and its isolation from the Chironormous larvae.	5

Text Book:

1.Principles of Genetics – **E.J.Gardener, M.J.Simmons and D.P.Snustard,** JohnWiley& Sons Publications.

References:

1. Cell and Molecular Biology – **Robertis*etal*.**Waverly publication, edition 8, 1995.

2. Genetics – Strickberger, **M.W.Printicehall**,edition 4,1997.

3. Genes V & VI – **Lewin. B.Oxford**,1994,1997.

4. Molecular Biology of the Cell – **Alberts.** Garland publication, edition 4, 2002.

5. Text Book of Cell and Molecular Biology – **Ajoy Paul**. Books and allied (p) Ltd, edition 2, 2007.

6**.** Biotechnology - **Satyanarayana**. U, (2005):, Books and Allied (p) Ltd.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Allied - Biochemistry –II

Semester-II **Hrs/Week: 6**

Course Code: 18U2BCA02 **Credits: 4**

Objectives

The course aims to provide a basic understanding of the chemical nature of biological macromolecules, the functions of dietary and endogenous carbohydrate, lipid, and protein, and also to learn the experimental approach and procedures involved in biochemical techniques.

Unit-I – Basics of Buffers and Instrumentation

Buffers-definition. Determination of PH -Henderson Hassel balch equation, dialysis, surface tension & viscosity. Principles, instrumentation and applications of colorimetry, Principles, instrumentation and applications of chromatography (paper &TLC).

Unit-II – Carbohydrate and Lipid Metabolism

Carbohydrate metabolism-EMP, glycogenesis, glycogenolysis, TCA, HMP, Lipid metabolism- Types of oxidation (definition), β- oxidation biosynthesis of steroids -cholesterol biosynthesis.

Unit-III- Protein Metabolism

Protein metabolism-transamination, oxidative & non oxidative deamination, decarboxylation, Urea cycle, Inter relationship of lipids, carbohydrates & protein metabolism.

Unit-IV- Bioenergitics

Bioenergetics – laws of thermo dynamics, redox potential, respiratory chain (theories & mechanisms), high energy compounds – currency of cells ATP molecules structure and functions.

Unit-V- Hormones

Hormones – Definition, classification of hormones, second messengers - cAMP biological functions & disorders of pancreatic hormones (Insulin, Glucagon), thyroid hormones (thyroxin and tri iodotyronin).

Course Outcome

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO – 1	Understand the significance of buffers and Accomplish knowledge on Principle, Instrumentation and applications of colorimetry and chromatography	4
CO – 2	Describe what happens during carbohydrate digestion, glycolysis, glycogenesis, TCA Cycle, glycogenolysis and fatty acid oxidation and synthesis of cholesterol	6
CO – 3	Give deep insights about the digestion of proteins, catabolism of amino acids and the urea cycle	7
CO – 4	Students get to understand about Bioenergetics and high energy compounds	6
CO – 5	Describe the different classes of hormones, second messengers – and biological functions & disorders of pancreatic and thyroid hormones	9

Text Books

1. Practical Biochemistry by Keith Wilson and john Walker, Cambridge University Press. Murray RK, DkGranner, PA Mayes and VM Rodwell (1999). Harper's Biochemistry. 24thEdition, Large Medical Publications

2. Satyanarayana U (2005). Essentials of Biochemistry,Books and Allied (p) Ltd., Kolkata.

References:

1. Jain JL (2003).fundamentals of biochemistry,S.chand&companyLtd.,New Delhi.

2. Deb A.C., (2004), concepts of biochemistry, (Theory and Practical), Books and Allied (p) Ltd., Kolkata.

3. Lehninger A.L., 2002, Biochemistry, CBS Pub.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Part-IV- EnvironmentalStudies

Semester – II **Hrs/week: 1**

Course Code: 18U2ES02 **Credit: 1**

UNIT I

The multidisciplinary nature of environmental studies: Definition, Scope and importance of Environmental science, Need for public awareness. Natural Resources: General idea about the Natural resources, current status and types of resources - Forest resources, Water resources, Mineral resources, Food resources, Energy resources and Land resources. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT II

Ecosystems: Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids. General idea about forest ecosystem, grassland ecosystem, desert ecosystems and aquatic ecosystem. Biodiversity and its conservation: Concept, origin, types, values, measurement and loss of biodiversity, Bio geographical classification of India, India as a mega-diversity nation, Hot spots of biodiversity, Endangered and endemic species of India and needs for conservation of biodiversity.

UNIT-III

Environmental Pollution: Definition and Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution. Thermal pollution and Nuclear pollution. Solid waste management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies and Disaster management: floods, earthquake, cyclone and landslides.

UNIT-IV

Social Issues and the Environment: Unsustainable to sustainable development. Water conservation- rain water harvesting and watershed management. Resettlement and rehabilitation of people.Environmentalethics.Global Environmental problems (Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust).Wasteland reclamation, Consumerism and waste products. General idea about Environmental laws: Environmental Protection Acts like Air, Water, Wildlife Protection and Forest Conservation act and Issues involved in enforcement of environmental legislation. Public awareness.

UNIT-V

Human Population and the Environment:Population growth and explosion, variation among nations.Family Welfare Programmes,Environment and human health. Human Rights,ValueEducation,HIV / AIDS, Women and Child Welfare, Role of Information Technology in Environment and Human Health. Field Work:Visit to a local area to document environmental assetsriver/forest/grassland/hill/mountain.Visit to a local polluted site – Urban / Rural / Industrial / Agricultural.Study of common plants, insects, birds. Study of simple ecosystems-pond, river, hill slopes, etc.

TextBooks:

1. Agarwal, K.C.2001 Environmental biology, Nidipubl.ltd.Bikaner.
2. Rao M N. & Datta,A.K.1987. Waste water treatment. Oxford &Blbh publ.
   Co. pvt Ltd.345p
3. Odum, E.P.1971. Fundamentals of Ecology.
   W.B.SaundersCo.USA, 574p
4. Miller T.G.Jr., Environmental Science, Wadsworth publishing Co. (TB)

5. Cunningham, W.P.Cooper, T.H.Gorhani, E & Hepworth, M.T.2001, Environmental encyclopedia, Jaico Publ. House, Mumbai, 1196p
6. De A.K., Environmental chemistry, Wiley Eastern Ltd.
   Down to Earth, centre for science and Environmental(R)
7. Brunner R.C., 1989, Hazardous waste Incineration, McGraw Hill Inc.480p

References:

1. BharuchaErach, The biodiversity of India, Mapin publishing pvt.Ltd. , Ahmedabed-380 013, India,
2. Clark R.S., Marine Pollution, clanderson press Oxford (TB)
3. Gleick, H.P.1993. Water in crisis, Pacific Institute for studies in Dev.,
4. Environment & Security. Stockholm Env. Institute. Oxford Univ. press.473p
5. Hawkins R.E, Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
6. Heywood, V.H & Watson, R.T.1995 . Global Biodiversity Assessment.Cambridgeuniv. press 1140p.
7. Jadhav, H & Bhosale, V.M. 1995. Environmental protection and Laws.Himalaya Pub. House, Delhi 284p.
8. Mckinney,M.L.& School , R.M.1996. Environmental Science systems & solution, Web enhanced edition.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Value Education-II-values for life

Semester- II **Hrs/Week: 1**

Course Code:18U2VE02 **Credit: 1**

Objective:

To teach the meaning and essential of life through the values which determines the happy and successful

Unit – I :

Value: Introduction – meaning, objective, sources and types of values – Value inculcation- process, approaches and factors determining value inculcation.

Unit – II :

Personal Values: Self – Confidence- meaning, importance, some basic steps to develop self- confidence. Self-motivation- Dimension of self-motivation-objectives of self-motivation- steps to train self-motivation. Goal setting & Analysis – Types of goals – Guidelines to achieve specified goals.

Unit – III:

Moral & Spiritual Values: Faith – Detachment- Loyalty – Non-Violence – Obedience- Prayer – Purity- Renunciation and truthfulness.

Unit- IV:

Social Values: Accounatability – Brotherhood- Concern for environment – Courtesy – Dialogue – Dutifulness – Forgiveness – Freedom – Friendship – Gratitude – Hospitality- Justice, Love – Patience – Responsibility – Service – sympathy – Team – Spirit – Tolerance- Sharing & Sportsman spirit.

Unit- V:

Behavioural values & Leadership Values: Manner- meaning, types and Basis of good manners, Table manners & Manner of tact and delicay.Behaviour and conduct on superior , through letters and in society.

Qualities of a good leader- Functions of an effective leadership – Factors to develop leadership skills.

Text Books

1. Value for Life. --Dr.S.Ignachimuthu, S.J.- Better Yourself Book
2. Being Happy and Successful -Dr.S.Ignachimuthu, S.J.- Better Yourself Book.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Core Practical - II: Lab in Genetics

Semester – II **Hrs/week: 3**

Course Code: 18U2BTP02 **Credit: 2**

Course Objective:

To provide the practical knowledge of the fundamental aspects of Genetics till themolecular level

<u>Experiments</u>

1. Mono hybrid cross
2. Dihybrid cross
3. Emasculation techniques.
4. Replica Plate techniques
5. Gradient plate techniques.
6. Rearing morphology of Drosophila (mutant eye identification)
7. Mounting buccal epithelium and observing living cells using vital staining.
8. Physical Mutation (UV)
9. Chemical Mutation (Etbr)

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B.Sc Biotechnology

Lab in Biochemistry

Semester-II **Hrs\week:3**

Course Code: 18U2BCA01 **Credit: 3**

Course Objective:

This course is concerned with basic lab skills. These skills include the accurate useof pipettes, making solutions, and safety measurements along with the identification ofbiomolecules such as carbohydrates, proteins and aminoacids by suitable tests.

Experiments:

1. Qualitative analysis:

i) Analysis of carbohydrates-Glucose, fructose, ribose, sucrose, lactose&starch

ii) Analysis of amino acids-Tyrosine, Arginine, Methionine, Cystine and histidine

2. Preparation:

i) Starch from potato

ii) Casein from milk

iii) Lecithin from egg yolk

3. Estimation:

i) Estimation of protein by Lowry's method.

ii) Estimation of ascorbic acid by 2,6-di chlorophenol indophenol dye

iii) Determination of acid number (Demonstration)

iv) Determination of saponification value (Demonstration)

vi) Estimation of glucose by orthotoludine method

4. Techniques:

i) Separation of amino acids by paper chromatography

ii) Separation of sugars by paper chromatography

iii) Separation of amino acids by TLC

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B.Sc Biotechnology

Core Course III: Fundamentals of Microbiology

Semester – III **Hrs/week: 6**

CourseCode:18U3BT03 **Credit: 5**

Course Objective:

To about microbial taxonomy and diversitylearn about the microbial growth pattern and nutrition requirement of microbes and they understand antimicrobial chemicals and its actions

UNIT-I

History of Microbiology, Classification of microorganisms - Kingdom protista, prokaryotic and eukaryotic microorganisms, the five kingdom concept of classification, archaeobacteria, eubacteria and eukaryotes.

UNIT-II

Microscope -light, electron, micrometry. Algae, bacteria, fungi, viruses and protozoa - morphology, ultra structures, sub cellular structure and cell envelope - slime, capsule, cell wall, cell inclusion Reproduction and life cycle pattern.

UNIT-III

Nutritional requirements and nutritional grouping of microorganisms, selective and differential media, and enrichment media, microbial assay media. Growth curve; axenic culture, synchronous culture, continuous culture; Methods of enumeration of microorganisms and preservation of microbes.

UNIT-IV

Factors controlling microbial growth-Physical agents and processes- pH, light, temperatures, desiccations, osmotic pressure, radiation, filtration; Chemical agents-Disinfectants, antiseptics and chemical sterilants; Antimicrobial chemotherapy evaluation-tube dilution, agar plate technique, phenol coefficient techniques.

UNIT-V

Microbes as a source of protein - Single Cell Protein,Role microbes in food spoilage and human diseases such as hepatitis, typhoid, TB, cholera, Malaria, fungal skin diseases.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To know about microbial taxonomy and diversity	3
CO-2	To clearly explain Prokaryotic and eukaryotic cells	1
CO-3	To study about Microscope and micrometry	8
CO-4	To learn about the microbial growth pattern and nutrition requirement of microbes	3
CO-5	To clearly explain about antimicrobial chemicals and its actions	7

Text Books:

1. Microbiology-Concept and applications, Pelczer M.J.J, E.C.S. Chang & N.R. Krieg, 1993. McGraw Hill company New York.

2. Microbiology. Prescot L.M, J.D. Harley & D. A. Klein, 1999.McGraw Hill.

References:

3. Microbiology, Fundamentals and Applications, Ronald M. Atlas, 1987. Prentice Hall.

4. General Microbiology, Stanier, 1986. McMillan Publishing Co.

5. Microbiology - An Introduction, 4th Edition, Gerard J. Tortora, Berdell R. Funke, Christine L. Care, 1992. The Benjamin/Cummings Publishing Company, Inc.

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Allied III: Marine Biotechnology

Semester – III **Hrs/week: 5**

Course Code: 18U3BTA03 **Credit: 4**

Course Objective:

To understand the probiotics and its applications of aquaculture and understand the cell cell communication system and quorum sensing.

UNIT-I

Introduction to Marine Biotechnology, types of marine ecosystem. Marine plant phytoplankton, zooplantkton and its relationship, sea grasses, mangroves and marine fungi, marine animals resources.

UNIT-II

Bioactive compounds from marine organisms. Marine microalgae and macro algae.Marine products and its applications.Seaweeds as a source of polysaccaharides and for removal of heavy metal pollutants.

UNIT-III

Hydrothermal vents: vent biodiversity, Hyperthermophilic and barophilic microorganisms and their applications. Biotechnological applications of extremozymes from extremophilic organisms.

UNIT-IV

Probiotics bacteria and their importance in aquaculture. Vaccines for aquaculture.Techniques for identification of bacterial and viral pathogen in aquaculture.

UNIT-V

Transgenic fish technology.Transgeneic fishes with growth hormone (GH) and antifreeze genes. Transposons in fishes.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To understanding of the fundamentals of Marine resources	3
CO-2	To learn about the commercial products from marine bioactive compounds	7
CO-3	To understand the probiotics and its applications of aquaculture	8
CO-	To study about Transgenic fish and its applications	9
CO-5	To understand the cell-cell communication system and quorum sensing	1

REFERENCES:

1. Handbook of probiotics and prebiotics (2009) Y.K. Lee & S. Salminen, second edition, Wiley, A. John Wiley &son'sinc publications.
2. Advance in biochemical engineering/Biotechnology-Marine Biotechnology I&II;[2005] Y.LeGal, R.Ulber, Springer Verlag Berlin Heidelberg.
3. Aquaculture Medicine, [2003], First edition, I.S. Bright Singh, S. SomnathPai, Rosamma Philip and A.Mohan Das, Paico Printing Press, Kochi,India.
4. Drugs from the Sea. [2000], Fusetani N. Karger, Tokyo.
5. Recent advances in Marine Biotechnology. Vol 2 (1998) by Fingerman, M., Nagabhushanam,R., Thompson, M. Oxford&IBH Publ.
6. Biotechnology and Biodegradation Advances in Biotechnology Series,Vol.4 (1990) by Kamely, D. Chakrabarty,A&Omum, G.S. Gulf publishing company, Houston.

7. The Microbiology of Deep- sea Hydrothermal vents (1995) Karl, D.M.CRC Press, Boca Raton. 501304.

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Department of Biotechnology

B.Sc Biotechnology

Core Practical – III: Lab in Microbiology

Semester – III **Hrs/week: 4**

Course Code: 18U3BTP03 **Credit: 4**

1. Sterilization Techniques: Physical &chemical.
2. Media Preparation – liquid (Broth) and solid (Plate and slant)
3. Isolation & Enumeration of Micro-organism from soil, water& Air.
4. Pure Culture techniques- Streaking (Continuous and quadrant)
5. Measurement of Growth rate of bacteria by using optical density
6. Staining Techniques – Gram's staining, spore staining, Acid fast, Lacto phenol cotton blue staining.
7. Characterization of micro organisms – Motility, carbohydrate utilization, MR-VP, Citrate utilization, Catalase, Oxidase, H_2O_2 production test.
8. Analyse of extracellular enzymes (Protease and Amylase) from microbes.
9. Antibiotic sensitivity assay
10. Isolation and identification of black mould from onion
11. Isolation of auxotrophs from soil.

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B.Sc Biotechnology

SBEC-I: Plant & Animal Physiology

Semester – III **Hrs/week: 2**

Course Code: 18U3BTS01 **Credit: 2**

Course Objective:

Study about Nitrogen Metabolism, Photosynthesis and respiration reactions and learn the respiration and respiratory pigments.To be well versed in Endocrine glands and Biorhythms

UNIT I

Water, Mineral and Solute: Uptake and Transport

Diffusion and Osmosis – Osmotic pressure, Theories on absorption and transport of Minerals –Translocation of organic solutes – source sink relationship- Transpiration: Types, Mechanism, Role and factors affecting transpiration

UNIT II

Nitrogen Metabolism: Importance of Nitrogen to plants – Sources of Nitrogen – Nitrogen cycle – Nitrogen Fixation: root nodule formation, Biochemistry of Nitrogen Fixation, Nitrification and Denitrification. Photosynthesis - Photosynthetic Electron transport system

UNIT III

Introduction to Physiology - Digestion – Physiology of Digestion- Intracellular and Extracellular - Digestive enzymes and their role in digestion – Absorption and assimilation. Excretion – structure of nephron - mechanisms of urine formation in mammals.

UNIT IV

Respiration - Respiratory pigments(Haemoglobin.)- properties and functions - Transport of oxygen and carbondioxide. Circulation - Types - Composition, Properties and functions of blood, Mechanism of blood clotting. Cardiac rhythm - origin of heart beat - regulation of heart beat - ECG - Blood pressure

UNIT V

Endocrine glands - structure, secretions and functions of endocrine glands in vertebrates: Structure of eye. Thermoregulation. Biorhythms - definition, types and examples and adaptive significance.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To know about water, Mineral, solutes and plant nutrients.	2
CO-2	To study about Nitrogen Metabolism, Photosynthesis and respiration reactions.	7
CO-3	ToUnderstand the Physiology and food requirement of animals.	3
CO-4	To learn the respiration and respiratory pigments.	1

Text Books:

1. Verma V. 2007. Tex book of Plant Physiology, Ane Books India, New Delhi

2. JainV.K. 2006. Fundamentals of Plant Physiology, S. Chand & Co, New Delhi

References:

1. Noggle and Fritz, 1976. Introductory Plant Physiology, Prentice Hall, New Delhi.
2. Pandey, SN &Sinha, BK. 1989. Plant Physiology, Vikas Publishing House Ltd., New Delhi
3. Robert M. Devlin. 1970. Plant Physiology, East West Press, New Delhi.
4. Verma, S.K, 1999, A Text book of Plant Physiology, S.K.Chand& Co., New Delhi.

5. Baijal, BD &Ravisharma, 1981. A Textbook of Plant Physiology, Shiva LalAgarwalCo., Agra
6. Salisbury, F.B. & Ross, CN. 1995. Plant Physiology. CBS Publishers, New Delhi.
7. William S.Hoar, 1976. General and Comparative Physiology, Prentice Hall of India Pvt. Ltd., New Delhi - 110 001, 848 pp.

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B.Sc Biotechnology

NMEC-I: Applied Biotechnology

Semester – III **Hrs/week: 2**

Course Code: 18U3BTN01 **Credit: 2**

Course Objective:

Learn about Plant, Animal, medicinal and drug biotechnology their applications.

UNIT I

Plant biotechnology-Role of tissue culture in agriculture, horticulture and forestry, Edible Vaccines from plants – Banana, Watermelon.

UNIT II

Animal biotechnology-Production of Vaccines in animal Cells, Transgenic Animals – cloning, Applications of Transgenic mice and sheep.

UNIT III

Medical biotechnology-Gene therapy, Production and Applications of monoclonal antibodies, Somatic and Germline Engineering, molecular diagnosis.

UNIT IV

Industrial biotechnology-Production of Microbial products- Alcoholic Beverage – Beer, Antibiotic – Penicillin Industrial uses of enzymes – Detergents, Leather, food and Pharmaceutical products.

UNIT V

Environmental biotechnology-Microorganisms as Bio indicators, Genetic engineered microorganisms to degrade xenobiotics, Biological weapons and bioterrorism.

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Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To learn about Plant biotechnology and its applications.	2
CO-2	To study about Animal Biotechnology and its applications.	4
CO-3	To known about Medical Biotechnology and its applications.	7
CO-5	To be well versed Environmental Biotechnology and bioremediation technology.	9

Text Books:

1. Biotechnology,**Satyanarayana.** U, (2008), Books and Allied (p) Ltd.
2. Industrial Microbiology – **A.H. Patel**, MacMillan Publishers, 2005
3. Biotechnology and Genomics,**Gupta P.K** , (2004) Rastogi publication.

References:

1. Principles of gene manipulation, **Old & Primrose,** (1989),
2. Animal Biotechnology, M **.M. Ranga,** (2000), Agrobios (India),
3. Culture of Animal Cells, R. **Ian Freshney**, 2000(4th Edition),,*Wiley-Liss.*
4. Introduction to Plant Biotechnology **Hawla,**(2003) (2nd edi) oxford and IBH publishere
5. Biotechnology,**Satyanarayana.** U, (2008), Books and Allied (p) Ltd.
6. Industrial Microbiology – **A.H. Patel**, MacMillan Publishers, 2005
7. Biotechnology and Genomics,**Gupta P.K** , (2004) Rastogi publication.
8. A text book of Biotechnology, **R. C. Dubey,** (2001), Rajendra Printer. New Delhi.
9. Gene cloning and DNA analysis, **T.A Brown** (1996), Blackwell science, Osney Mead, Oxford.

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Department of Biotechnology

B.Sc Biotechnology

Core Course: IV-Molecular Biology

Semester – IV **Hrs/week: 6**

Course Code: 18U4BT04 **Credit: 5**

Course Objective:

To study about central dogma of Prokaryotes and eukaryotes and get knowledge aboutMolecular genome mapping.

UNIT I

Central dogma of molecular Biology.DNA Replication. Prokaryotic and Eukaryotic DNA replication, Mechanism of DNA replication,Enzymes and accessory proteins involved in DNA replication.DNA Repair – light and dark mechanisms..

UNIT II

Transcription- Prokaryotic and Eukaryotics, RNA polymerase.Transcriptional and post-transcriptional modification in gene silencing. Modifications in RNA.5' cap formation, 3'-end processing and polyadenylation, splicing, Editing, Nuclear export of mRNA.

UNIT III

Translation-Prokaryotic and eukaryotic translation, the translation machinery, Mechanisms of initiation, elongation and termination, co-and post-translational modifications of proteins. Import into nucleus, mitochondria and chloroplast.

UNIT IV

Regulation of gene expression-lac and trp operons. Oncogenes and Tumor Suppressor Genes-Viral and cellular oncogenes,tumor suppressor genes from humans,Structure ,function and mechanisms p53 tumor suppressor proteins. Homologous Recombination-Holliday junction.

UNIT V

Molecular Mapping of Genome-Genetic and physical maps.Southern and fluorescence in situ hybridization in genome analysis.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To know about basic molecular biology.	1
CO-2	To be well versed with Translation and its mechanism	7
CO-3	To learn about Regulation of gene expression	10
CO-4	To get knowledge about Molecular mapping of genome	7

Text Books:

1. Molecular Biology of gene (4th Edition**), J.D.Watson, N.H.Hopkins, J.W.Roberts, J.A.Steitz and A.M.Weiner.** The Benjamin/Cummings publications C Inc.California, 1987.
2. Molecular Cell Biology (2nd Edition, **J.Darnell, H.Lodish and D.Baltimore,** Scientific American Book, USA, 1994.
3. Molecular Biology of the Cell (2nd Editiion**) B.Aberts, D.Bray, J.Lewis, M.Raff, K.Roberts and J.D.Watson,** Garland Publishing, Inc.New York, 1994.

References:

1. Molecular cloning: A Laboratory Manual, **J.Sambrook, E.F.Rritsch and I.Maniatis,** Cold Spring Hratbor Laboratory Press, New York, 2000.

2. Molecular Biology, Labfax, **T.A.Brown**, Bioscientificpublishers ltd, Oxford, 1991.

3.. Molecular Biology of gene(4th Edition**), J.D.Watson, N.H.Hopkins, J.W.Roberts, J.A.Steitz and A.M.Weiner.** The Benjamin/Cummings publications C Inc.California, 1987.

4. Molecular Cell Biology(2nd Edition, **J.Darnell, H.Lodish and D.Baltimore,** Scientific American Book, USA, 1994.

5. Molecular Biology of the Cell (2nd Editiion**) B.Aberts, D.Bray, J.Lewis, M.Raff, K. Roberts and J.D.Watson,** Garland Publishing, Inc.New York, 1994.

6. Gene VII Benjamin Lewin.Oxford University Press. U.K.

7. Genomes, T.S.Brown.

8. Molecular Biology and Biotechnology**. J.M.Walker and R.Rapley**. 2005.

9. Molecular Biotechnology, **S.B.Primrose**.2005.

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Core Practical – IV: Lab in Molecular Biology

Semester – IV **Hrs/week: 4**

Course Code: 18U4BTP04 **Credit: 4**

1. Isolation of genomic DNA from bacteria.
2. Bacterial Transformation.
3. Conjugation.
4. Estimation of DNA (DPA method).
5. Estimation of RNA (Orcinol method).
6. Extraction and Estimation of Protein (Lowry's method).
7. Separation of DNA by AGE.
8. Separation of protein by SDS PAGE.
9. Isolation of antibiotic resistant mutant.

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Allied Course II: Computer Applications in Biology

Semester – IV **Hrs/week: 5**

Course Code: 15U4CSA04 **Credit: 3**

UNIT I

Introduction to Computers: Introduction – Types of Computers – Characteristics of Computers. Generations of Computers - Classification of Computers – Programming Languages: Machine Language – Assembly Language – High level languages. Input Devices- Keyboard – Mouse - Types of mice – Connections – Mouse Pad - Trackball – Joystick -Out put Devices – Dot Matrix Printer – Inkjet – Laser Printer – LCD & LED Printers– Line Printer Auxiliary Storage Devices : Hard Disk – CD –DVD – primary memory.

UNIT II

Overview of C: History of C – Importance of C – Basic structure of C programs. Constants, variables and data types: Character set – Keywords and identifiers – Constants – Variables – Declaration of storage classes. Operators and expression – Evaluation of expressions – Type conversions in expressions – Operator precedence and associatively – Mathematical functions. Managing input and output operations: Reading and writing a character – Formatted input and output.

UNIT III

Decision making and branching: Simple IF, IF-ELSE, Nesting of IF-ELSE, ELSE-IF ladder, Switch statements – GOTO statements. Decision making and looping: WHILE statement – DO statement – FOR statement – Jumps in loops. Arrays: Definition & Declaration – One dimensional – Two dimensional – Multi dimensional arrays - Dynamic
arrays.

UNIT IV

Character arrays and strings: Introduction – Declaring and initializing string variables – User – Defined functions: – Definition of functions – Return

values and their types – Function calls – Function declaration – All category of functions – Nesting of functions Structures and Unions: Introduction – Accessing structure members – Structure initialization -Arrays of structures – Arrays within structures - Unions

UNIT V

Scope of bio informatics-internet basic-biological data analysis and applications sequences of data bases – application of bio informatics

Text Book:

1. Programming in ANSI C, **E. Balgurusamy**Tata McGraw Hall, New Delhi, 4th edition. (Unit-II, III, IV).

References:

1. Fundamentals of computers science and Communication Engineering. **Alexis Leon & Mathews Leon**, Vikas Publishing House Pvt. Ltd., New Delhi (Unit-I).

2. Programming in ANSI C, **E. Balgurusamy**Tata McGraw Hall, New Delhi, 4th edition. (Unit-II,III,IV).

3. Introduction to Bioinformatics by **V.Kothekar**, 2004 Dhruv publications, Delhi - 95. (Unit-V).

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Allied Practical II: Lab in Computer Applications in Biology

Semester – IV **Hrs/week: 3**

Course Code: 18U4CSAP02 **Credit: 1**

Programming List:

1. Finding Mean, Standard deviation and Mean deviation for a given problems.
2. Calculating the correlation coefficients.
3. Finding Regression coefficients and Regression lines.
4. Students't' test analysis (statistics to biological problems/data).
5. Chi-square test.
6. Write a program to find the factorial of a given number & to count the positive,

   Negative & zero numbers.
7. Write a program to find the occurrences of each character in the string & to

   Concatenate two strings without using string library function.

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SBEC- II: Pharmaceutical Biotechnology

Semester – IV **Hrs/week: 2**

Course Code: 18U4BTS02 **Credit: 2**

Course Objective:

To learn about drug metabolism in pharmacokinetics and pharmacodynamics and understand drug chemotherapeutic compounds.

UNIT I

History & Principle of pharmacology.Drug names & Classification systems.General Principles of Drug action, Pharmaco kinetics, Pharmaco dynamics, measurement of drug action.

UNIT II

Chemo therapeutic drugs- Protein synthesis inhibitors, Anti mycobacterial, anti fungal, anti protozoal, antiviral, Antihelmithic, anticancer, anti inflammatory drugs.

UNIT III

Techniques of r-DNA technology for production of Biologicals: Human Insulin, HGH, GRF, Erythropoietins, IFN, INF, Lymphotoxin, Interleukins.

UNIT IV

Production of Ergot alkaloids, Primary Metabolites of Pharmaceutical uses.Biotransformation& Steroid production.

UNIT V

Biochips, Biofilms, Biosurfactants. Protein Engineering, Tissue Engineering.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To study about pharmacokinetics and pharmacodynamics	7
CO-2	To understand the enzymes in therapeutics and antibiotics.	2
CO-3	To learn about r-DNA technology used in production of biological compounds.	5
CO-4	To understand the uses of biotransformation in pharmaceuticals.	7
CO-5	To known about biochips, biofilms and biosurfactants.	5

Text Books:

1. Pharmaceutical Biotechnology – S.S. Purohit, Kaknani, Saleja
2. Pharmacology – Mary J. Myuk, Richard A.Hoarey, PamalaLippinwittWilliams edition.

References:

1. Pharmaceutical Biotechnology – S.S. Purohit, Kaknani, Saleja
2. Pharmacology – Mary J. Myuk, Richard A.Hoarey, PamalaLippinwittWilliams edition.
3. Pharmacology – H.P. Rang, M.M. Pale, J.M. Moore, Churchill Livingston.
4. Integrated pharmacology – Page, Curtis, Sulter, Walker, Halfman. Mosby Publishing co.

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B.Sc Biotechnology

NMEC II: Concepts of Biotechnology

Semester – IV **Hrs/week: 2**

Course Code: 18U4BTN02 **Credit: 2**

Course Objective:

To study about vectors, Plasmids and Cosmid and learn about molecular level of gene.

UNIT I

Scope of Biotechnology. History of Biotechnology: Conventional and Modern Biotechnology – Biotech industries. Biotechnology Tree – Roots and Branches.Strategies of gene cloning.

UNIT II

Tools used in gene cloning – Restriction endonucleases – Types – Features. Ligases – Linkers, adaptors and homopolymer tails. Modifying enzymes – Nucleotide kinase, Alkalinephsphatase. Gene amplification by PCR.

UNIT III

Vectors – Properties of a good Vector .Constructed plasmids- pBR322. Cosmid vectors, Animal vectors- SV40. Plant vectors- Ti derivatives.

UNIT IV

Introduction of genes – Vector mode – transformation and transfection. Vector less mode –Biolistics, Electroporation, Microinjection.

UNIT V

Properties of *E.coli*&Yeast as good hosts. Selection of recombinants – Reporter genes, Colony hybridization.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To understand the Scope, History, Conventional and Modern Biotechnology.	9
CO-2	To learn about genetic engineering, what are the enzymes used in the genetic engineering and PCR techniques.	10
CO-4	To known about Transformation techniques.	6

Text Books:

1. A text book of Biotechnology,**Dubey**, **R. C.** (2007), S.Chand& Company Ltd. New Delhi.

2. Biotechnology, **Singh, B. D** (2004). Kalyani Publishers, New Delhi

References:

1. Principles of Gene Manipulation **Old & Primrose**, (1989), 3rd edition

2. Biotechnology, **Satyanarayana**. U, (2008), Books and Allied (p) Ltd

3. Biotechnology and Genomics, **Gupta P.K**: (2004) Rastogi publication.

4. Gene cloning and DNA analysis **Brown, T.A** (1996), Blackwell science, Osney Mead, Oxford.

5. A text book of Biotechnology,**Dubey**, **R. C.** (2007), S.Chand& Company Ltd. New Delhi.

6. Biotechnology, **Singh, B. D** (2004). Kalyani Publishers, New Delhi

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Core Course V: Genetic Engineering

Semester – V **Hrs/week: 6**

Course Code: 18U5BT05 **Credit: 5**

Course Objective:

The aim of this course is to provide an introduction to recombinant DNA technology. It helps the students to understand how the principles of molecular biology have been used to develop techniques in recombinant DNA technology. The objective of the course is to familiarize the student with the basic concepts in genetic engineering - enzymes, cloning vehicles, gene libraries, analysis and expression of the cloned gene in host cell and understand ethical issues and biosafety regulations. It gives emphasis to practical applications of genetic engineering tools in the field of health care.At the end of the course the student will have enough background of recombinant DNA technology essential for taking up projects in the field of Biotechnology

UNIT I – History and Enzymes in rDNA Technology

History of rDNA Technology - Enzymes in rDNA Technology – Restriction Endonuclease – Ligases – Alkaline - S1 nuclease – DNA polymerase, RNA polymerase- Rnases – Ribonuclease – Reverse transcriptase - Taq polymerase . Linker, adapter.

UNIT II - Vectors

Vectors- Plasmids – Shuttle and expression vector- Amplification- Types – Plasmid pBR322 - origin – advantage –pUC - Col E1 plasmid – Ti plasmid - F plasmid – R plasmid . λ phage vectors, cosmids and phagemid as vectors.

UNIT III - Vectors and Recombinant clones

Animal and Plant viruses and their use of vectors, Shuttle vectors, Expression vectors.Screening and selection of recombinant clones.

UNIT IV - Gene transfer techniques

Gene transfer techniques. Molecular mechanism of antisense technology.Types of PCR, RAPD, RFLP. DNA Sequencing, DNA Microarray.

UNIT V – Genomic libraries

Construction of genomic and cDNA libraries, screening of libraries.Human genome project. Achievements -Super bug, Golden Rice, Safety regulations in recombinant DNA.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To learn about the History and Enzymes in rDNA Technology	10
CO-2	To understand about the fundamental principles of cloning vectors	5
CO-3	To learn about the types of vectors and recombinant clones	2
CO-4	Student will have complete knowledge about various molecular techniques and their application	4
CO-5	Student will understand aboutDNA libraries and safety regulations	9

Text Books:

1.Recombinant DNA Second Edition - James D. Watson, Micheal Gilman, Mark

Zoller, 2001. W.H. Freeman and Company, New York.

2.Biotechnology,**Satyanarayana.** U, (2008), Books and Allied (p) Ltd.

3.Principles of Gene Manipulation and Genomics - **Primrose, S.B. and Twyman, R.M.** 2006. 7th Edition. Blackwell Publishing Company.

References:

1. From Genes to Clones Introduction to Gene Technology - **Winnacker, E.L.**

1987., Panima Educational Book Agency, New Delhi.

2. Gene VII **-Benjamin Lewin**, 2000. Oxford University Press, UK.

3. Principles of Gene Manipulation and Genomics - **Primrose, S.B. and Twyman,**

R.M. 2006.7th Edition. Blackwell Publishing Company.

4. Recombinant DNA Second Edition - **James D. Watson, Micheal Gilman, Mark**

Zoller, 2001. W.H. Freeman and Company, New York.

5. Biotechnology,**Satyanarayana.** U, (2008), Books and Allied (p) Ltd.

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Department of Biotechnology

B.Sc Biotechnology

Core Course VI: Plant Biotechnology

Semester – V **Hrs/week: 6**

Course Code: 18U5BT06 **Credit: 4**

Course Objective:

On the successful completion of the course, students will be able to acquire knowledge on basic principles and techniques in plant tissue culture. Studentswill have the knowledge on safe handling and maintenance of transgenic plants andproducts.The plant biotechnology chapters will examine the scientific and technical advances which underlie the production of genetically modified crops. The course covers plant genome organization and gene expression, genetic manipulation to confer resistance to herbicides, pests and diseases and strategies for engineering stress tolerance and the improvement of crop yield and quality.

UNIT I–Media types and Composition

Types of media and composition - Structure and function of Growth regulators – Auxins, Cytokininis and Gibberellins. Callus and suspentionculture.Somatic embryogenesis, Synthetic seeds.

UNIT II – Haploid production

Haploid production, Anther and microspore culture.Gynogenesis, embryo culture and rescue in agricultural and horticultural crops. In-vitro pollination and fertilization.

UNIT III- Proplast isolation and Transgenic plants

Protoplast isolation, Culture regeneration, fusion. Somatic hybrids, cybrids, cryopreservation,Terminator seed concept. Gene transfer techniques in plants. Applications of transgenic plants.

UNIT IV – Micropropagation and Edible vaccines

Plant micro propagation – micro grafting – *invitro*clonal multiplication – clonal orchards – meristem culture and virus elimination shoot tip culture.Edible vaccines from plants – Banana, Watermelon.

UNIT V – Invitro culture, Secondary metabolites and Biodiversity

Somaclonal and Gamatoclonal variation in vitro cultures, Secondary metabolites in plants - production –screening - applications.Role of tissue culture in agriculture, forestry, Biodiversity and conservation.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Student will understand about media and its types, plant hormones, Embryogenesis and Synthetic seeds.	3
CO-2	Student will have knowledge on haploid production and invitro techniques.	2
CO-3	To understand the subject of plant genetic engineering and transgenic plants	8
CO-4	Student will understand the various techniques of Micropropagation and Edible vaccines	5
CO-5	Understanding the knowledge of Invitro culture, Secondary metabolites and Biodiversity	9

Text Books:

1. Plant biotechnology by **Ramawath**, 2003, S. Chan Dana co, edition 2, 2003.

2. Biotechnology, **Satyanarayana**. U, 2008, Books and Allied (p) Ltd.

References:

1. Biotechnology applications of Plant Tissue & Cell culture. **Ravishankar G.A. and VenkataramanL.V,** 1997.Oxford & IBH Publishing co., Pvt. Ltd.

2. Tissue culture, **Bhan**, 1998, Mittal Publications, New Delhi.

3. Plant tissue culture, **IslanA.C**,1996, Oxford& IBH Publishing Co., Pvt.,

4. Plant biotechnology by **Ramawath**,2003, S. Chan Dana co, edition 2, 2003.

5. Plants from Test tubes- An introduction to Micropropagation, **LydianeKyte& John Kleyn**, edition 3, 1996, Timber Press, Partland.

6. Plants, Genes and Agriculture, **Chrispeel M. J, Sadava D. E,** 1994, Jones and Barlett Publication, Boston.

7. Biotechnology, **Satyanarayana**. U, 2008, Books and Allied (p) Ltd.

8. Applied and Fundamental Aspects of Plant Cell, Tissue and Organ Culture, **Reinert J and Bajajy.P.S,** 1997, Narosa Publishing House

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Core Course VII: Environmental and Industrial Biotechnology

Semester- V **Hrs/week: 6**

Course Code: 18U5BT07 **Credit: 4**

Course Objective:

The course content aims to make the Students understand how biotechnology canhelp in monitoring or removing the pollutants and about the Ecosystem. The Industrial biotechnology helps to learn about introduction, downstream processing and bioprocess technology.

UNIT-I - Ecosystem

Ecosystem – Concepts of an ecosystem- Structure and function of an ecosystem- producers, consumers and decomposers- Energy flow in the ecosystem-Ecological – succession – food chains, food webs and ecological pyramids-introduction, types, characteristic features, structure and function of the following ecosystem- forest ecosystem, grassland ecosystem. Desert ecosystem, aquatic ecosystem (ponds, streams, lake, rivers, oceans).

UNIT-II - Environmental Pollution

Environmental Pollution: Definition, causes, effects and control measures of – Air pollution, water pollution and soil pollution. Marine pollution – Noise pollution – Thermal pollution and nuclear hazards- Solid waste management- Causes effects and Control measures of urban and industrial wastes- Role of individuals in prevention of pollution.

UNIT-III – Downstream Processing

Bioethanol production- sugar to ethanol process , starch to ethanol process, cellulose to ethanol process- distillation and dehydration process- properties- application.Microorganism in production of biomass: Single cell protein, Mushroom cultivation.Biofertilizers,biofuel, biodiesel and Bio leaching – types of bioleaching.

UNIT-IV - Introduction to Industrial Biotechnology

Introduction to industrial biotechnology- objectives and scope – characteristics and comparsion of bioprocessing with chemical processing- strain improvement .Isolation&screening of industrially important microorganisms.Preservation and improvement of industrial microorganisms.

UNIT-V - Bio process Technology

Introduction to bio process technology, development of inoculums for industrial fermentation and some primary metabolites e.g., ethanol, acetone- butanol and citric acid. Microbial Prodution – Microbial production of industrial enzymes- Amylase and proteases, streptrokinases, production of vitamin B12 and secondary metabolites- penicillin, streptomycin

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To clearly explain the concept of Ecosystem	3
CO-2	To understand the concept of microbe to clean up the polluted environment,mining, etc	5
CO-3	To understand the various downstream process	4
CO-4	Students will have knowledge on Biotechnology role in industry	2
CO-5	To get skills of Bioprocess Technology and enzymes production	10

Text Book:

1. Biotechnology, **Satyanarayana.** U, (2008), Books and Allied (p) Ltd.

2. Industrial and Environmental Biotechnology - Nuzhat Ahmed, Fouad M. Qureshi and Obaid Y. Khan, 2006. Horizon Press.

References:

1. Waste water engineering - treatment, disposal and reuse, Metcalf and Eddy Inc., Tata McGraw Hill, New Delhi.

2. Environmental Chemistry, AK. De, Wiley Eastern Ltd, New Delhi.

3. Introduction to Biodeterioration, D.Allsopp and K.J. Seal, ELBS / Edward Arnold.

4. Bioremidation, Baaker, KH and Herson D.S., 1994. Mc.GrawHillInc, NewYork.

5. Industrial and Environmental Biotechnology - Nuzhat Ahmed, Fouad M. Qureshi and Obaid Y. Khan, 2006. Horizon Press.

6. Environmental Molecular Biology, Paul. A, Rochelle, 2001.Horizon Press.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Elective-I: Bio-Nanotechnology and Biostatistics

Semester – V **Hrs/week: 5**

Course Code: 18U5BTE01 **Credit: 4**

Course Objective:

The objective of the course is to familiarize the student withthe concepts of nanotechnology and basics in mathematics & statistics.

UNIT I – NanoBiology and Biodegradation

Nanobiology-concepts, definitions, prospects Introduction – Types of biomaterials (Silver and Gold). Biodegradable polymers.Biodegradation of solid polymers.Modes of erosion (surface & bulk).

UNIT II – Drug delivery and its Applications

Drug delivery systems – polymer therapeutics:- polymer drug conjugates; polymeric micellers; liposomes, Application of nano materials in medicines:- Drug designing and Cancer treatment.

UNIT III – Biosafety and Good Laboratory Practices

Biosafety- Introduction.Different levels of biosafety. Guidelines for Rdna research activities. General guidelines for research in transgenic plants, Good Laboratory Practices (GLP).Containments – Types. Basic Laboratory and Maximum ContainmentLaborotary.

UNIT IV - Biostatistics Introduction

Definition of Biostatistics, Parametric and non-parametric statistics.Population, Sample, Sampling distribution, Sampling Techniques, Data collection, Classification, tabulation and diagrammatic presentation. Measure of location: Measures of Central values- Mean,Medium and Mode.

UNIT V – Dispersion and Correlation

Measures of dispersion – Range, Mean Deviation, Standared Deviation, coefficient of variation.

Correlation : Definition, Types, Measurement, Karl Pearson's Coefficient of Correlation. Reggression (simple & linear only) analysis.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1:	Understand the basic principles of nanotechnology	9
CO-2:	Study the application of nanotechnology in drug delivery system	7
CO-3:	To learn the concepts of Biosafety and Good Laboratory Practices	10
CO-4:	Understand the mathematical basis and foundations of probability and statistics	7

Reference Books

1. Biomaterials Sciences: An Introduction to Materials in Medicine 2nd Edition,
Buddy D. Ratner, Allan S. Hoffman, Frederick J. Schoen and Jack E. Lemons.
2. Lehninger's Principles of Biochemistry, 4th Edition, David L. Nelson and Michael M. Cox, 2006
3. Nanobiotechnology: Concepts, applications and perspectives, Christof M. Niemayer, Chad A. Mirkin, Wiley VCH publishers 2004.
4. Bionanotechnology: Lessons from Nature, David. S. Goodsell, Jhonwiley2006.
5. Naobiotechnology: Molecular Diagnosis, K.K. Jain, Tailor L. Francis Group.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

ELECTIVE-I: Medical Biotechnology

SEMESTER – V **Hrs/week: 4**

Course Code: 18U5BTE02 **Credit: 4**

Course Objective:

To be well versed with biotechnology in health care toabout the recent developments for drug biotechnology.

UNIT - I

Tools of Medical Biotechnology – Biotechnological revolutions Genomics, combinatorial chemistry, insight into basic biology-Areas of application, Diagnosis and prediction of disorders ,Limits and approaches.

UNIT- II

Role of biotechnology in healthcare.World wide market and work in medical biotechnology. Vaccine production-New developments.

UNIT- III

Biosensors in clinical diagnosis, chiral technology, monoclonal antibodies for immunotherapy.

UNIT -IV

Recent developments in medical biotechnology –Pharming for human proteins and
neutraceuticals .Tissue engineering and therapeutic cloning.

UNIT-V

Application of nanotechnology in biomedical sciences- Green nanaosubstances, gene delivery, drug delivery.Nanotechnology in replacing defective cells.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1:	Students gain knowledge about tools of medical biotechnology	9
CO-2:	Explore several representative mechanisms of nanotechnology	7

Text Books:

1. Medical Biotechnology: JuditPongracz, Mary Keen Elsevier Health Sciences, 01,Jan 2009 - Medical - 193 pages.
2. FirdosAlam Khan Biotechnology in Medical SciencesCRC Press; 1 edition (22 November 2017) ISBN-10: 1138076791 ISBN-13: 978-1138076792

Reference Books

1. V. V. RAO P. NALLARI Medical Biotechnology.Edition: 2nd Edition, 2010
2. SassonAlbert Medical Biotechnology Publisher: Rawat Genre: Technology & Engineering. 2nd edition,2010

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Lab in Genetic Engineering, Plant and Industrial Biotechnology

Semester -V **Hrs/week: 3**

Course Code: 18U5BTP05 **Credit: 2**

Core Practical-V

Genetic Engineering:

1. Isolation of plasmid DNA from bacteria-AGE
2. Isolation of Genomic DNA from bacteria-AGE
3. Restriction Digestion and Ligation.
4. PCR – demonstration.

Plant Biotechnology

5. Plant Tissue culture media preparation and Sterilization techniques
   a.MS Media
   b.Nitsch's media
   c.White's media
6. Callus induction
7. Micro propagation.
8. Protoplast isolation.
9. Embryo culture.

Industrial Biotechnology

10. Isolation of industrially important microorganism.
11. Production & estimation of biomass - dry weight & Wet weight methods.
12. Production of wine.
13. Immobilization of yeast cells.
14. Alcohol production & estimation.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Core Course VIII: Animal Biotechnology

Semester – VI **Hrs/week: 6**

Course Code: 18U6BT08 **Credit: 4**

Course Objective:

To introduce the basics of the subject of animal biotechnology andits applications to the students in an attractive and simple manner and to understand the Animal products and
exploitation of them in Biotechnology.

UNIT I – Animal Tissue Culture Media

Scope of Animal Tissue culture.Media-Natural, Semi synthetic &Synthetic.Role of ingredients in Animal culture Media.

UNIT II – Animal Cell Culture

Basic Techniques of mammalian cell culture; Disaggregation of animal tissue.Primary culture, Evolution of cell line, Organ culture, Stem cell culture, Embryo Culture.

UNIT III – Sericulture and Aquaculture

Sericulture, Commercial production of silk, Silkworm as a bioreactor, Baculoviruses as animal viral vector.Biotechnology of aquaculture.

UNIT IV - Embryo Technology& Animal Breeding

Embryo Technology& Animal Breeding.Invitro fertilization, Embryo transfer, ICSI, Embryo splitting, Cell cloning, Transgenic animals-Dolly sheep and Mice. Hybridoma Technology, Production of vaccine, Interferon's, Hormones in ATC

UNIT V - Ethical values and issues

Ethical values in animal biotechnology.Bioethics- Introduction.Animal Rights. General issues related to environment release of transgenic plants, animals and microorganisms. Ethical issues related to research in embryonic stem cell cloning.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To learn about various Media in animal cell culture	1
CO-2	Student will learn about basic Techniques of mammalian cell culture	6
CO-3	To understand about the Sericulture, Aquaculture and about Baculovirus	2
CO-4	It gives introduction to the various transformation techniques employed in animal	9
CO-5	It also describes the ethical values and issues in animal biotechnology	10

Text Books:

1. Animal Biotechnology – Dr. Ramadoss.
2. Animal Biotechnology-R.Sasidhara, MJP Publishers, 2006.
3. Medical biotechnology- S.N Jogdand, Himalaya publishing house ,2004.
4. Biotechnology, Satyanarayana. U, (2008), Books and Allied (p) Ltd

References:

1. Culture of animal cells – R. Ian Freshney, John wiley& sons Puhler.
2. Invitro cultivation of Animal cells – Bulterworth&Heincmann, tunwich University Press.
3. Genetic Engineering of Animal – A. Publer, VCH Publishers.
4. Animal Biotechnology – M. Ranga. Studam publishers, 2006.
5. Animal Biotechnology – Dr. Ramadoss.
6. Animal Biotechnology-R.Sasidhara, MJP Publishers, 2006.
7. Medical biotechnology- S.N Jogdand, Himalaya publishing house, 2004.
8. Biotechnology, Satyanarayana. U, (2008), Books and Allied (p) Ltd

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Core Course IX: Immunology

Semester – VI **Hrs/week: 6**

Course Code: 18U6BT09 **Credit: 4**

Course Objectives:

The objectives of this course are to make students learn about the structural features of the components of the immune system as well as their function. The major emphasis of this course will be on the development of the immune system and mechanisms by which our body elicit the immune response.

UNIT I - Introduction to Immunology

Historical perspectives and overview of immune system, innate and acquired immunity. Immune system- Organs and Cells, Haematopoiesis.

UNIT II – Antigen and hypersensitive reaction

Antigen – Properties, Classes. Haptens, Adjuvants .Cell mediated immunity – receptors and T cell activation. Humoral response – B cell activation and proliferation.Hypersensitive reactions.

UNIT III - Immunoglobulins

Immunoglobulins – Structure and function. Antigen – Antibody interaction, Monoclonal and polyclonal antibodies. Organization and expression of immunoglobulin genes.

UNIT IV – cytokines and Complements

Cytokines: Types and function, Complements, Major Histocompatability Complex.

Immune regulation and suppression.Molecular aspect of drug delivery.

UNIT V – vaccine and immune response

Autoimmunity, Vaccines and immune response to infectious diseases, Immune deficiency diseases (AIDS), Transplantation.

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Department of Biotechnology

B.Sc Biotechnology

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Students will learn about basic immune system	1
CO-2	To know various types of antigen	9
CO-3	To get basic knowledge about antibodies	2
CO-4	Student can able to explain the monoclonal antibodies, hypersensitivity and Hybridoma technologies	4
CO-5	To know about cytokines and its types and Components	1
CO-6	To know about various immune techniques for infectious diseases	6

Text Books:

1. Immunology by J.Kubey(1993) Freeman and company
2. Immunology by L.M. Roitt, J. Brestoff and D.K. Males (1996)

References:

1. Immunology by **L.M. Roitt, J. Brestoff and D.K. Males** (1996).
2. Immunology by **J.Kubey**(1993) Freeman and company.
3. Immuno-biology by **Janeway CA and Paul Travers** 1994.
4. Immunological techniques by **D.M. Weir** (1992).
5. Monoclonal Antibodies: Principles and Practice by **J.W. Goding**(1983) Academic Press.
6. Hybridoma Technology in the Biosciences and medicine by **T.A. Springer** (1985) Plenum Press NY.
7. Vaccines, New Approaches to immunization by **F.Brown, R.M. Chanock, KA Lerner** (1986) cold spring Harborolab.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Core Course X: Stem Cells & Regenerative Medicine Technology

Semester –VI **Hrs/week: 6**

Course Code: 18U6BT10 **Credit: 4**

Course Objective:

The objective of this course is to enable Students to understand the principles of stem cells. Students will acquire knowledge in the areas of tissue engineering.

UNIT- I - Introduction and stem cell types

Stem cells - definition; unique properties – proliferation and differentiation; Potency definitions: totipotent, pluripotent, multipotent and unipotent; basics of early human embryology; History and key stem cell research events.

UNIT II – Isolation and identification

Isolation, culture, identification and assays. Types: unlimited and limited; Embryonic and adult stem cells - bone marrow, cord blood, hematopoietic.

UNIT III- Cloning and cell bank

Stem cells and cloning; germ line stem cells; Recruiting Donors and Banking hES Cells, stem cell bank, regulation of umbilical cord and human embryonic cell.

UNIT IV – Stem cell therapy

Genetically engineered stem cells and experimental therapies. Stem cell based therapies: stem cells and repair of heart and nervous system; regeneration strategies.

UNIT V – Ethical issues and Values

Guidelines for hES cell research - Scientific background of hESC research; Ethical and scientific concerns; Current Regulation of Human Embryonic Stem Cell Research.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	The Students will be able to comprehend the concept of stem cells, different types of stem cells	8
CO-2	Student will learn to describe the concept of stem cell cloning and its applications	5
CO-3	Students learn to recognize treatment of human diseases connected to stem cell therapy.	9
CO-4	Students understand about cloning, isolation and identification of stem cells	6
CO-5	Students understand about Ethical issues and Values	10

Text Books:

1. Stewart Sell 2003 (Ed) Stem Cells Handbook, Humana Press, NY
2. Verma IM and Gage FH 2002 (Ed) Regenerative Medicine, NatlAcadSci&Engg, USA.

References:

1. The Natl Academies, USA 2007 Understanding Stem Cells
2. The Natl Academies, USA 2002 Stem Cells and the Future of Regenerative Medicine.
3. Stem Cells Info 2008, NIH USA.
4. Terese Winslow 2006 Regenerative Medicine, NatlAcadSci&Engg, USA

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

SBEC – III- Bioinformatics and Intellectual Property Rights

Semester – VI **Hrs/week: 2**

Course Code: 18U6BTS03 **Credit: 2**

Course Objectives:

The objective of this course is to familiarize Students with basic concepts of sequences, structural alignment, database searching, protein structure prediction and to introduce basic concepts of ethics and safety that are essential for various branches of science involving technical procedures and protection of intellectual property and related rights.

UNIT I – Bioinformatics introduction

Bioinformatics –definition, introduction, history and scope. Databanks – Gen Bank, PDB. Literature Databanks - Pubmed, Med line. Human Genome Project.

UNIT II – Biological and Structural Database

Biological database including proteins and nucleic acids – Sequence – EMBL, DDBJ. Structural databases - CATH, SCOP.Specialized database – Genome data base, EST.

UNIT III – Sequence Alignment

Sequence Alignment based on Matrices (BLOSUM and PAM), Algorithm (Needleman Wunsch& Smith Waterman). Tools for sequence alignment – BLAST, FASTA.

UNIT IV – IPR and IPP

IPR & IPP – Patents, copy rights, trade secrets, trademarks. Plant breeders right, patenting of biological materials. Patents of biotechnology in India.WIPO, GATT, and TRIP.

UNIT V- Biosafety

Biosafety – Risk for human health, environment and agriculture. Biosafety guidelines, regulation and operation.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To perform alignment of sequences and construct the matrix for alignment based on dynamic programming	7
CO-2	To learn about different biological and Structural database	7
CO-3	student will able to analyze sequence and structure of bio-macromolecule data	9
CO-4	Students will be able to interpret basics of biosafety and bioethics and its impact on all the biological sciences and the quality of human life	8
CO-5	Students will be able to recognize importance of biosafety practices and guidelines in research	9
CO-6	Students understand comprehend benefits of GM technology and related issues	10
CO-7	Students will be able to recognize importance of protection of new knowledge and innovations and its role in business	9

Text Books:

1. Introduction to Bioinformatics **T.K.Attwood, D.J.Parry-smith** (2004) Pearson Education.

2. Bioinformatics for the beginners **K.Mani&N.Vijayaraj.**

3. Biosafety and Bioethics, **Rajmohanjoshi**2006.

4. Text book of Biotechnology, **R.C Dubey**2004.

References:

1. Introduction to Bioinformatics **T.K.Attwood, D.J.Parry-smith** (2004) Pearson Education.

2. Bioinformatics for the beginners **K.Mani&N.Vijayaraj.**

3. Proteomics- **Pennigton& Dunn** (2002) Viva books publishers, New Delhi.

4. Bioinformatics- A practical guide to the analysis of genes & protein 2nd **ED Andreas,Baxevanis and Francis Ouellette.**

6. Bioinformatics. **David H Mount**. 2005. Second Edn. CBS Publishers, New Delhi.

7. Biosafety board of trustees, **Trayror, P.C Frederic,R and Koch,M**2002. Muchigan State university, USA.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Elective III: Bio Physics and Bioinstrumentation

Semester – VI **Hrs/week: 4**

Course Code: 18U6BTE03 **Credit: 4**

Course Objective:

It provides detail knowledge about basic principles in biophysics and Students understand various analytical techniques used in biotechnology based research and industry.

UNIT I - Basic concepts of biophysics

Basic concepts of biophysics: Bonding: Strong (covalent,ionic,peptide and coordinate bonds)and weak interactions (Hydrogen bonding and Van der Waals forces) in macromolecules. Structure and properties of water: Hydrophobic and hydrophilic interactions.

UNIT II - Chromatography

Chromatography: Basic principles, Adsorption and Partition Chromatography: Column Chromatography, Thin layer Chromatography, Gas chromatography and HPLC. Electrophoresis: Basic Principle, AGE and PAGE.

UNIT III - Spectrphotometer

Spectrphotometer: Principles, types, Constrution and applications of UV/VIS spectrophotometer, Atomic Adsorption Spectrophotometer. Tracer technique: Nature of Radioactivity, Define activity, half life period, detection and measurement of radioactivity: Geiger Muller Counter.

.**UNIT IV - Care and maintenance of laboratory Equipment**

Care and maintenance of laboratory Equipment.Ph meter, distillation Plant, Deionizers, Automatic dispensers & Diluters, Acid-base analyser, Osmometers.

UNIT V–Laboratory Sanitation

Biological containment system.Air sanitation procedure.Potential Hazards of Laboratory techniques.

Course Outcome:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Understand the methods of Biophysics and structure of protein and stability	2
CO-2	Student will understand the various bonding and structure properties of water	3
CO-3	Students will be able to apply basic principles of different analytical techniques in analytical work.	4
CO-4	Students learn to use spectroscopy and radioactivity in biotechnological applications	5
CO-5	Students learn to work in microscopy, centrifugation and electrophoretic techniques.	1
CO-6	Students will be able to demonstrate principle and working of various instruments.	8
CO-7	Students understand about the uses of various techniques for solving industrial and research problems.	6

Text Books:

1. Bioinstrumentation,**Veerakumari**(2006). First edn.MJP Publisher.

2. Analytical Biochemistry and separation techniques**, Palanivelu, P** (2008). Tulsi Books centere Madurai.

References:

1. Biochemistry**, Vote, D. & Vote, J.G.** (1995), Second edn. John wiely&sons.

2. Bioinstrumentation**, John Webster**, (2004). John weily& Sons.

3. Bioinstrumentation,**Veerakumari**(2006). First edn.MJP Publisher.

4. Molecular Biology of the Gene, **James, D. Watson Hopkins N.H. Robert, J.W. &Steitz, J.A.**

5. Biochemistry ,**Zubay, G.L.** edition 4., WmC , Brown Pulshers.

6. Analytical Biochemistry and separation techniques**, Palanivelu, P** (2008). Tulsi Books centere Madurai.

7. Principles of Biochemistry, **Lehninger, Nelson, D. & Cox, M.(**2000). Edition 4 W,H. Feeman and Company, New York.

8. Biophysics**, Arora.** (2004). Edition 1, Himalaya publishers, New Delhi.

9. Practical Biochemistry**,Wilson, K.& Walker,** J. 2003.edition 5, Cambridge University.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Biotechnology

B.Sc Biotechnology

Core Practical-VI Lab in Immunology, Animal Biotechnology and Bioinformatics

Semester -VI **Hrs/week: 3**

Course Code: 18U6BTP06 **Credit: 2**

Course Objective:

Learn basics practical knowledge in Plant and Animal Biotechnology

Immunology

1. Preparation of plasma and serum.
2. Blood cell analysis – total count, differential count.
3. Agglutination tests:
    a. ABO Blood grouping.
    b. WIDAL test.
    c. ASO test.
    d. Pregnancy test.
4. Precipitations:
    a. Radial immunodiffusion.
    b. Double immnodiffusion.
    c. Rocket immuno electrophoresis.
5. ELISA

Animal Biotechnology

6. Preparation of Animal cell culture media.
7. Culture of chick embryo fibroblast.
8. Inoculation of virus and observation.
9. Egg inoculation-Demonstration
10. Chick embryo – demonstration.

Bioinformatics

11. Sequence Alignment by BLAST.
12. Sequence Retrieval from any data bank (NCBI).

Selvamm Arts and Science College (Autonomous)

(Nationally Reaccredited (2nd Cycle) at 'A' Grade by NAAC)

UGC recognized 2(f) and 12(B) Institution

Affiliated to Periyar University, Salem.

Namakkal – 637 003.

Department of Computer Science

Bachelor of Science (Computer Science)

Regulations and Syllabus-CBCS Pattern (Autonomous)

(2018-19 and thereafter)

Vision

To develop problem solving abilities using a computer and to help students build-up a successful career in Computer Science.

Mission

Providing a strong theoretical and practical background across the computer science discipline with an emphasis on software development.

Programme Outcomes (UG)

PO 1: Communicate Effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.

PO 2: **Environment Concern** - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

Structure of B.Sc(Computer Science)

Programme Under CBCS Pattern for Autonomous

(From 2018-19 and Thereafter)

Curriculum and Scheme of Examinations

Sem.	Part	Course Code	Course	Credits	Hours/ Week	Marks		
						C.I.A	E.A	TOTAL
I	I	18U1FTA01	Foundation Tamil – I	4	5	25	75	100
	II	18U1FEN01	Foundation English – I	4	5	25	75	100
	III	18U1CS01	Problem Solving Techniques	3	5	25	75	100
		18U1CS02	Programming in C	3	5	25	75	100
		18U1MAA03	Allied I : Numerical and Statistical Methods	4	4	25	75	100
		18U1CSP01	Lab I : Programming in C	2	4	40	60	100
	IV-B	18U1VE01	Value Education : Yoga and Practice	1	2	25	75	100
	Total Credits for I Semester :21			**21**	**30**	**190**	**510**	**700**
II	I	18U2FTA02	Foundation Tamil – II	4	5	25	75	100
	II	18U2FEN02	Foundation English – II	4	5	25	75	100
	III	18U2CS03	Object Oriented Programming with C++	3	4	25	75	100
		18U2ELA01	Allied II : Principles of Digital Electronics	3	4	25	75	100
		18U2CSP02	Lab II : Programming with C++	2	4	40	60	100
	IV-A	18U2CSSP01	SBEC Lab I: MS Office	2	3	40	60	100
	III	18U2ELAP01	Allied Lab I: Digital Electronics	2	3	40	60	100
	IV-B	18U2VE02	Value Education : Values for Life	1	1	25	75	100
	IV-B	18U2ES01	Environmental Studies	1	1	25	75	100
	Total Credits for II Semester : 22			**2**	**30**	**270**	**630**	**900**

				2				
III	I	18U3FTA03	Foundation Tamil – III	4	5	25	75	100
	II	18U3FEN03	Foundation English –III	4	5	25	75	100
	III	18U3CS04	Data Structures	3	5	25	75	100
		18U3CS05	System Analysis and Design	3	5	25	75	100
		18U3_	Allied III : Principles of Accountancy	4	4	25	75	100
		18U3CSP03	Lab III : Data Structures using C	2	4	40	60	100
	IV-A		NMEC – I	2	2	25	75	100
	Total Credits for III Semester : 22			**22**	**30**	**190**	**510**	**700**
IV	I	18U4FTA04	Foundation Tamil – IV	4	4	25	75	100
	II	18U4FEN04	Foundation English –IV	4	4	25	75	100
	III	18U4CS06	Relational Database Management System	3	4	25	75	100
		18U4_	Allied IV : Discrete Mathematics	4	4	25	75	100
		18U4CSP04	Lab IV : RDBMS	2	4	40	60	100
		18U4CS07	Operating Systems	4	5	25	75	100
	IV-A	18U4CSSP02	SBEC Lab II: Accounting Package	2	3	40	60	100
			NMEC – II	2	2	25	75	100
	Total Credits for IV Semester : 25			**25**	**30**	**230**	**570**	**800**
V	III	18U5CS08	Event Driven Programming	4	4	25	75	100
		18U5CS09	Java Programming	4	4	25	75	100
		18U5CS10	Linux Programming	5	5	25	75	100
		18U5CSE_	Elective – I	3	4	25	75	100
		18U5CSE_	Elective – II	3	4	25	75	100
		18U5CSP05	Lab V : Event Driven Programming	2	3	40	60	100
		18U5CSP06	Lab VI : Java Programming	2	3	40	60	100
	IV-A	18U5CSSP03	SBEC Lab III : DTP	2	3	40	60	100
	Total Credits for V Semester : 25			**2**	**30**	**245**	**555**	**800**

				5				
VI	III	18U6CS11	Open Source Technologies	4	4	25	75	100
		18U6CS12	Computer Networks	5	5	25	75	100
		18U6CSE_	Elective – III	3	4	25	75	100
		18U6CSE_	Elective – IV	3	4	25	75	100
		18U6CSP07	Lab VII : PHP and MySQL	2	3	40	60	100
		18U6CSP08	Lab VIII : S/W Development Lab	3	4	40	60	100
	IV-A	18U6CSSP04	SBEC Lab IV: HTML and Web Design	2	4	40	60	100
	IV-A	18U6STE01	Skills Through English	1	2	25	75	100
	Total Credits for VI Semester : 23			**23**	**30**	**245**	**555**	**800**
	V	18U6EX01	Extension Activities	**2**	**-**	**-**	**-**	**-**
	Grand Total			**140**	**180**	**1370**	**3330**	**4700**

ELECTIVE – I

Sem.	**Part**	**Course Code**	**Course**
V	III	18U5CSE01	Web Technology
		18U5CSE02	Client/Server Technology
		18U5CSE03	Computer Architecture

ELECTIVE – II

Sem.	**Part**	**Course Code**	**Course**
V	III	18U5CSE04	Software Testing
		18U5CSE05	Software Project Management
		18U5CSE06	Software Engineering

ELECTIVE – III

Sem.	Part	Course Code	Course
VI	III	18U6CSE07	Data Warehousing and Data Mining
		18U6CSE08	Natural Language Processing
		18U6CSE09	Computer Graphics

ELECTIVE – IV

Sem.	Part	Course Code	Course
VI	III	18U6CSE10	Design and Analysis of Algorithms
		18U6CSE11	E-Commerce
		18U6CSE12	Artificial Intelligence

SBEC – Skill Based Elective Courses

Part	Sem.	Course Code	Course	Credits	Hours	Marks		
						CIA	EA	Total
IV-A	II	18U2CSSP01	SBEC Lab-I : MS Office	2	3	40	60	100
	IV	18U4CSSP02	SBEC Lab-II : Accounting Package	2	3	40	60	100
	V	18U5CSSP03	SBEC Lab-III: DTP	2	3	40	60	100
	VI	18U6CSSP04	SBEC Lab-IV: HTML and Web Design	2	4	40	60	100

Non Major Elective Courses - (NMEC)

Non Major Elective Subjects offered by the department of computer science/Applications.

The department can offer any one of the subjects to the other major subject students in semesters III & IV.

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Part	Sem.	Course Code	Course	Credits	Hours	Marks		
						CIA	EA	Total
IV - A	III	18U3CSN01	NMEC- I: Fundamentals of Information Technology	2	2	25	75	100
		18U3CSN02	NMEC - I: Office Automation	2	2	25	75	100
	IV	18U4CSN03	NMEC - II: Photoshop	2	2	25	75	100
		18U4CSN04	NMEC - II: Web Designing	2	2	25	75	100

Allied Courses

Part	Sem.	Course Code	Course	Credits	Hours	Marks		
						CIA	EA	Total
III	III	18U3CSA01	Allied-I: Programming in C	3	5	25	75	100
		18U3CSA02	Allied-I:Programming in Python	3	5	25	75	100
		18U3CSA03	Allied-I: Visual Programming	3	5	25	75	100
	IV	18U4CSA04	Allied-II: Programming in C++	3	5	25	75	100
		18U4CSA05	Allied-II: Computer Applications in Biology	3	5	25	75	100
		18U4CSA06	Allied-II: Internet and Computer Applications	3	5	25	75	100

Allied Practical Courses

Part	Sem.	Course Code	Course	Credits	Hours	Marks		
						CIA	EA	Total
III	III	18U3CSAP01	Allied Practical-I: Programming in C	2	3	40	60	100
		18U3CSAP02	Allied Practical-I: Programming in Python	2	3	40	60	100
		18U3CSAP03	Allied Practical-I: Visual Programming	2	3	40	60	100
	IV	18U4CSAP04	Allied Practical-II: Programming in C++	2	3	40	60	100
		18U4CSAP05	Allied Practical-II: Computer Applications in Biology	2	3	40	60	100
		18U4CSAP06	Allied Practical-II: Internet and Computer Applications	2	3	40	60	100

PSO-1	Understand the concepts of key areas in computer science.
PSO-2	Ability to identify a problem , define the computing requirements and analyze which may be appropriate to its solution
PSO-3	Ability to apply knowledge in mathematics, science fundamentals to solve problems.
PSO-4	The ability to understand, analyze and develop computer programs in the areas related to algorithms, web design, application program, database, and networking for efficient design of computer-based systems
PSO-5	An ability to design, implement, and evaluate a computer based system, process, component, or program to meet desired needs.
PSO-6	Understand the basic concept of computer hardware and networking.
PSO-7	Ability to apply mathematics, and basic sciences that may be to the domain
PSO-8	Ability to use a range of programming languages and tools to develop computer programs that are effective to solve the problems.
PSO-9	Ability to use recent techniques, skills, and tools necessary for computing practices.
PSO-10	Able to prepare a student for self entrepreneurship.

CORE- I:Problem Solving Techniques

Semester: I **Credits: 3**
Code: 18U1CS01 **Hours: 5**

Objectives:

To introduce basic computer concepts

- To apply methods for specific problems
- To understand the concept of swapping, counting, adding and factorial computation
- To introduce the algorithms for generating prime numbers and Fibonacci number

Unit-I

Introduction to Digital Computer : Introduction- Von Neumann Concept- Storage- Programming Languages- Translators- Hardware and Software- Operating Systems. **Problem Solving Strategies:** Problem Analysis- Algorithms- Flow Charts- Examples of Algorithms and Flow Charts.

Unit-II

Introduction to Computer Problem-Solving: Introduction- The Problem solving Aspect- Top-Down Design- Implementation of Algorithms- Program Verification- The Efficiency of Algorithms- The Analysis of Algorithms.

Unit-III

Fundamental Algorithms: Introduction- Exchanging the values of Two Variables- Counting- Summation of a set of Numbers- Factorial Computation- Generation of the Fibonacci Sequence- Reversing the Digits of an Integer.

Unit-IV

Factoring Methods: Introduction- Finding the Square Root of a Number- The Smallest Divisor of an Integer- Generating Prime Numbers- Computing the nth Fibonacci number.

Unit-V

Array Techniques: Introduction- Array Order Reversal- Array Counting or Histogramming- Finding the Maximum Number in a set- Partitioning an Array- Finding the Kth Smallest Elements.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand Von-Neumann concept, programming language, translators and hardware/software. Able to understand problem solving strategies	8
CO2:	Understand algorithm implementation, program verification, efficiency and analysis of algorithms	4
CO3:	Write algorithms for fundamental problems like swapping, counting and factorial computation. Able to understand and write factoring methods,	3
CO4:	Understand basic Array techniques.	1

Text Books:

1.E.Balagurusamy,"Introduction to Computing and Problem Solving Using Python" **,** McGrawHill Education , 2016.

2.R. G. Dromey , "How to Solve it by Computer ", Pearson Education Inc.,Sixteenth Impression.

CORE-II: Programming in C

Semester: I **Credits: 3**
Code: 18U1CS02 **Hours: 5**

Objectives:

- ✓ To describe the basic structure of C program and its compilation and execution
- ✓ To discuss about decision making with if statement, if…else statement and switch statement
- ✓ To define the concept of Arrays
- ✓ To know the concept of pointer and determine how pointer variables used in a programs

Unit – I

Overview of C : History of C – Importance of C - Basic Structure of C Program – Executing a C Program. **Constants, Variables, and Data types:** Introduction-Character Set – C Tokens

- Keywords and Identifiers – Constants – Variables – Data Types – Declaration of Variables

- Declaration of Storage Class - Assigning values to variables – Defining symbolic constants. **Operators and Expressions.**

Unit – II

Managing Input and Output Operations: Reading and Writing a Character- Formatted Input and Output. **Decision Making and Branching:** Decision Making with If Statement - Simple IF- The IF-ELSE statement - Nesting of IF-ELSE Statements – The ELSE-IF Ladder- The Switch

Statements – The ?: Operator – The GOTO Statement. **Decision Making and Looping:** The WHILE Statement – The DO Statement – The FOR Statement – Jumps in Loops

Unit – III

Arrays : Introduction-One-dimensional Arrays–Declaration and Initialization of 1D Arrays- Two-dimensional Arrays-Initializing 2D Arrays-Multi-dimensional Arrays-Dynamic Arrays. **Character Arrays and Strings**: Introduction Declaring and Initializing String Variables- Reading and Writing Strings-Arithmetic Operations on Characters-Putting Strings Together- Comparisons of Two Strings-String Handling Functions.

Unit – IV

User-defined Functions: Introduction – Need for User-defined Functions – A Multi- function Program – Elements of User -defined Functions– Definition of Functions – Return Values and their Types – Function Calls – Function Declaration – All Category of Functions

– Nesting of Functions – Recursion – Passing Arrays to Functions – Passing Strings to Functions. **Structures and Unions:** Introduction-Defining and Declaring Structure Variables- Accessing Structure Members-Structure Initialization-Arrays of Structures-Arrays within Structures-Structures within Structures- Structures and Functions-Unions.

Unit – V

Pointers : Introduction-Understanding Pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Initialization of Pointer Variables-Accessing a Variable through its Pointer - Chain of Pointers – Pointer Expressions –Pointer Increments and Scale Factor - Pointers and Arrays – Pointers and Character Strings – Array of Pointers – Pointers as Function Arguments – Functions Returning Pointers – Pointers to Functions – Pointer and Structures . **File Management in C:** Introduction-Defining and Opening a File-Closing a File-I/O Operations on Files-Error Handling

During I/O Operations-Random Access to Files- Command Line Arguments.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Write the basic C programs with variables and arithmetic operators, Understand the fundamentals of C program,	8
CO2:	To develop conditional and iterative statements to write C programs,	4
CO3:	To choose the loops and decision making statements to solve the problem	3,8
CO4:	Be able to write program to perform arrays on any dimensions,	5
CO5:	Understand different string handling functions to carryout string manipulations,	9
CO6:	To understand how to write and use multiple functions to return values.	9

Text book:

1. E.Balagurusamy, " Programming in ANSI C", Tata MC Graw-Hill, 7th Edition- 2017. Unit-I (Chapter –I,II,III), Unit – II (Chapter IV,V,VI), Unit – III (VII,VIII), Unit-IV (Chapter - IX,X), Unit-V (XI,XII).

Reference books:

1. Byron S.Gottfried, Jitender Kumar Chhabra, "Programming with C", Third edition, 2010.
2. Yashavant K.Kanetkar, "Let us C", Tenth edition, 2010.

Lab I : Programming in C

Semester: I **Credits: 2**
Code: 18U1CSP01 **Hours: 3**

1) Write a C program to perform Arithmetic operations.
2) Write a C Program to find the Largest of Three Number using nested if….else statements.
3) Write a C Program to check whether the given string is Palindrome or not.
4) Write a C Program to arrange the N – Numbers in Ascending and Descending order.
5) Write a C Program to print the Fibonacci series.
6) Write a C Program to find the Factorial of a number using Recursion.
7) Write a C Program to illustrate String Handling Functions.
8) Write a C Program using Pointers.
9) Write a C Program Using Structures.
10) Write a C Program using File concept.

Department of Computer Science

B.Sc –Computer Science

CORE-I: Value Education: Yoga and Practice

Semester: I **Credits: 1**
Code: 18U1VE01 **Hours: 2**
Yoga:

VALUE EDUCATION YOGA		
Units	**Title of the Paper**	**Hrs. of Instruction per week**
Unit- I Yoga and physical health	1.1 Physical structure of human body 1.2. Simplified physical exercises 1.3 Maharasanas 1.4 Yogasanas	(5hours)
Unit-II Arts of Nurturing life force and Mind	2.1 Maintaining youthfulness 2.2 Sex and spirituality 2.3 Ten stages of Mind 2.4 Mental frequency	(5 hours)
Unit-III Sublimati on	3.1 Purpose of life 3.2 Analysis of Thought 3.3 Moralization of Desire 3.4 Neutralization of Anger	(5 hours)
Unit- IV Human resource development	4.1 Eradication of Worries 4.2 Benefits of Blessings 4.3 Greatness of Friendship 4.4 Individual Peace	(5 hours)
Unit- V	5.1 Cause and Effect System	
Law of Nature		(5 hours)

Practical Exercise

1. Hand exercises
2. Leg exercise
3. Nero – Muscular Breathing exercise
4. Eye exercises
5. Kapalapathi
6. Makarasana (Part A or Part B)
7. Massage
8. Acu pressure
9. Relaxation

Asanas

1. Padmasana
2. Vajrasanas
3. Chakrasanas (side)
4. Viruchasanas
5. Yoga muthra
6. Patchimothasanas
7. Ustrasanas
8. Vakkarasanas
9. Salabasan

CORE-III: Object Oriented Programming With C++

Semester: II **Hours: 4**
Code: 18U2CS03 **Credits: 3**

Objectives:

- ✓ To introduce the object oriented programming approach and to identify the various control structures
- ✓ To determine function prototyping, call by reference and inline functions
- ✓ To introduce polymorphism and its types
- ✓ To introduce the formatted and unformatted I/O operations.
- ✓ To introduce the basics of templates and exception handling.

Unit – I

Principles of Object –Oriented Programming: Software Evolution – A Look At Procedure–Oriented Programming – Object –Oriented Programming Paradigm – Basic Concepts of Object – Oriented Programming – Benefits of OOP –Applications of OOP. **Beginning with C++ :** What Is C++ - Applications of C++ – A Simple C++ Program – More C++ Statements – An Example with Class – Structure of C++ program. **Tokens, Expressions and Control Structures:** Introduction – Tokens – Keywords – Identifiers and Constants – Basic Data Types – User defined Data Types – Storage Classes - Derived Data Types – Symbolic Constants – Type Compatibility – Declaration of Variables – Dynamic Initialization of Variables – Reference variables In-Operators C++ - Scope Resolution Operator – Member Dereferencing Operators – Memory Management Operators – Manipulators – Type Cast Operators - Expressions and Their Types – Special Assignment Expressions – Implicit Conversions – Operator Overloading – Operator Precedence –

Control Structures.

Unit – II

Functions in C++ : Introduction – The Main Function – Function Prototyping – Call By Reference – Return by Reference - Inline Functions – Default Arguments – Functions Overloading – Friend and Virtual Functions. **Classes and Objects :** Introduction – Specifying a Class – Defining Member Functions – A C++ program with Class – Making an Outside Function Inline – Nesting of Member Functions – Private Members Functions – Arrays within a Class – Memory Allocation for Objects – Static Data Members – Static Member Functions – Arrays of Objects – Objects as Function Arguments – Friendly functions – Returning Objects – Const Member Functions – Pointers to Member – Local Classes. **Constructors and Destructors :** Introduction – Constructors – Parameterized Constructors – Multiple Constructors in a class – Constructors with Default Arguments – Dynamic Initialization of Objects – Copy Constructor – Dynamic Constructors – Constructing Two Dimensional Arrays – Const Objects – Destructors.

Unit – III

Operator Overloading and Type Conversions: Introduction – Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends – Manipulation of Strings using Operators – Rules for Overloading Operators – Type conversions. **Inheritance: Extending Classes:** Introduction – Defining Derived Classes – Single Inheritance – Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes – Constructors in Derived Classes – Member Classes: Nesting of Classes. **Pointers, Virtual Functions and Polymorphism :** Introduction – Pointers - Pointers to Objects - this Pointer – Pointers to Derived Classes – Virtual Functions –

Pure Virtual Functions.

Unit - IV

Managing Console I/O Operations: Introduction – C++ Streams – C++ Stream Classes – Unformatted I/O Operations – Formatted Console I/O Operations – Managing Output with Manipulators. **Working with Files:** Introduction – Classes for File Stream Operations – Opening and Closing a File-Detecting End-of-File – More about Open(): File Modes –File Pointers and their Manipulations – Sequential Input and Output Operations – Updating a File: Random Access – Error Handling During File Operations – Command–Line Arguments.

Unit – V

Templates: Introduction – Class Templates – Class Templates with Multiple Parameters – Function Templates – Function Template with Multiple Parameters – Overloading of Template Functions – Member Function Templates. **Exception Handling:** Introduction - Basics of Exception Handling – Exception Handling Mechanism – Throwing Mechanism – Catching Mechanism – Rethrowing an Exception – Specifying Exceptions.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To understand the basic elements of a simple C++ program.	1
CO2:	Able to write a program used by constructors and destructors.	9
CO3:	To understand the concept of extending classes through inheritance.	4
CO4:	To implement the concept of pointers, polymorphism and virtual functions in a C++ program.	5
CO5:	Exercise file concept using formatted and unformatted I/O operations.	9

CO6:	To understand the concept of class template and function template.	1
CO7:	To develop a C++ program using exception handling mechanism	8

Text book:

1. E. Balagurusamy, "Object Oriented Programming with C++", TMH, Seventh Edition.

Unit-I (Chapter –I.II,III), Unit – II (Chapter IV,V,VI), Unit – III (VII,VIII,IX), Unit-IV (Chapter - X,XI), Unit-V (XII,XIII).

Reference books:

1. D.Ravichandran, "Programming with C++", TMH, Second edition.
2. M.T.Somashekara, "Programming in C++", PHI, 2009.

Lab II : Programming with C++

Semester: II **Credits: 2**
Code: 18U2CSP02 **Hours: 4**

1. Write a C++ program to calculate NCR using function
2. Write a C++ Program by implementing classes and objects
3. Functions using call by value and call by reference
4. Operator overloading
5. Function overloading
6. Implementing Different types of Constructors
7. Implementation of Inheritance
8. Implementation of I/O Streams with text file and data file
9. Implementation of Templates
10. Implementation Exception Handling concepts

CORE-II: Value Education: Values For Life

Semester: II **Credit: 1**
Code: 18U2VE02 **Hours: 1**

Objective:

- To teach the meaning and essential of life through the values which determines the happy and successful.

Unit – I

Values: Introduction – meaning, objective, sources and types of values – Value inculcation- process, approaches and factors determining value inculcation. Case study: Social Awareness

Unit – II

Human Individual Values: Ambition – Cleanliness-Contentment-Courage-Creativity- Determination-Dignity of Labour-Diligence-Discernment-Excellence-Honesty-Hope-Maturity- Regularity and Punctuality-Self Confidence-Self Motivation-Simplicity-Case Study: Cleanliness

Unit – III

Social Values: Accountability – Brotherhood- Concern for environment – Courtesy – Dialogue – Dutifulness – Forgiveness – Freedom – Friendship – Gratitude – Hospitality- Justice, Love – Patience – Responsibility – Service – sympathy – Team Spirit – Tolerance- Sharing and Sportsman spirit. Case Study: Responsibility.

Unit- IV

Moral and Spiritual Values: Faith – Detachment- Loyalty – Non-Violence – Obedience-Prayer

– Purity- Renunciation and truthfulness. Case Study: Non-Violence

Unit- V

Behavioural values and Leadership Values: Manner- meaning, types and Basis of good manners, Table manners and Manner of tact and delicacy.Behaviour and conduct on superior,through letters in society. Qualities and Functions of an effective leadership – Factors to develop leadership skills. Case Study: Fundamentals of Behavioral Values.

Reference books:

1. Value for Life - Dr.S.Ignachimuthu, Better Yourself Book
2. Being Happy and Successful - Dr.S.Ignachimuthu, Better Yourself Book

Core I: Module Syllabus For Environmental Studies

For Under Graduate Courses of All Branches of Higher Education

Semester: II **Credits: 1**

Code: 18U2ES01 **Hours: 1**

Unit- I: The multidisciplinary nature of environmental studies:

Definition, Scope and importance of Environmental science, Need for public awareness. Natural Resources: General idea about the Natural resources, current status and types of resources - Forest resources, Water resources, Mineral resources, Food resources, Energy resources and Land resources. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

Unit- II: Ecosystems:

Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids. General idea about forest ecosystem, grassland ecosystem, desert ecosystems and aquatic ecosystem. Biodiversity and its conservation: Concept, origin, types, values, measurement and loss of biodiversity, Bio geographical classification of India, India as a mega-diversity nation, Hot spots of biodiversity, Endangered and endemic species of India and needs for conservation of biodiversity.

Unit-III : Environmental Pollution:

Definition and Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution. Thermal pollution

and Nuclear pollution. Solid waste management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies and Disaster management: floods, earthquake, cyclone and landslides.

Unit-IV: Social Issues and the Environment:

Unsustainable to sustainable development. Water conservation- rain water harvesting and watershed management. Resettlement and rehabilitation of people. Environmental ethics. Global Environmental problems (Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust). Wasteland reclamation, Consumerism and waste products. General idea about Environmental laws: Environmental Protection Acts like Air, Water, Wildlife Protection and Forest Conservation act and Issues involved in enforcement of environmental legislation. Public awareness.

Unit-V: Human Population and the Environment:

Population growth and explosion, variation among nations.Family Welfare Programmes,Environment and human health. Human Rights,Value Education,HIV / AIDS, Women and Child Welfare, Role of Information Technology in Environment and Human Health. Field Work:Visit to a local area to document environmental assetsriver/forest/grassland/hill/mountain.Visit to a local polluted site – Urban / Rural / Industrial
/ Agricultural.Study of common plants, insects, birds. Study of simple ecosystems-pond, river, hill slopes, etc.

Reference books:

1. Agarwal, K.C.2001 Environmental biology, Nidi publ.ltd.Bikaner.
2. Bharucha Erach, The biodiversity of India, Mapin publishing pvt.Ltd. ,

Ahmedabed-380 013, India, Email:mapin@icenet.net (R)

3. Brunner R.C., 1989, Hazardous waste Incineration, McGraw Hill Inc.480p
4. Clark R.S., Marine Pollution, clanderson press Oxford (TB)
5. Cunningham, W.P.Cooper, T.H.Gorhani, E & Hepworth, M.T.2001, Environmental encyclopedia, Jaico Publ. House, Mumbai, 1196p
6. De A.K., Environmental chemistry, Wiley Eastern Ltd.
7. Down to Earth, centre for science and Environmental(R)
8. Gleick, H.P.1993. Water in crisis, Pacific Institute for studies in Dev., Environment & Security. Stockholm Env. Institute. Oxford Univ. press.473p
9. Hawkins R.E, Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
10. Heywood, V.H & Watson, R.T.1995 . Global Biodiversity Assessment. Cambridge univ. press 1140p.
11. Jadhav, H & Bhosale, V.M. 1995. Environmental protection and Laws. Himalaya Pub. House, Delhi 284p.
12. Mckinney,M.L.& School , R.M.1996. Environmental Science systems & solution, Web enhanced edition. 639p.
13. Mhaskar A.K, Matter Hazardous, techno-Science publications (TB)
14. Miller T.G.Jr., Environmental Science, Wadsworth publishing Co. (TB)
15. Odum, E.P.1971. Fundamentals of Ecology. W.B.Saunders Co.USA, 574p
16. Rao M N. & Datta,A.K.1987. Waste water treatment. Oxford &Blbh publ. Co. pvt Ltd.345p.

CORE-IV : Data Structures

Semester: III **Credits : 3**
Code: 18U3CS04 **Hours: 5**

Objectives:

- **To give a fundamental knowledge on data structures.**
- **To understand about Arrays, Linked List**
- **To know Stack , Queues and its applications**
- **To impart non linear data structures such as Trees and Graphs .**
- **To understand the concepts of Searching and Sorting Techniques**

Unit-I

Data Representation: Abstract Data Type (ADT)-Fundamental and Derived Data Types-Representation-Primitive Data Structures – Symbol Table-Recursion. **Arrays:** Introduction-Representation of an Array-Multidimensional Arrays-Sequential Allocation and Address Calculation-Operations on Arrays-Vector-Application of Arrays-Strings as an Arrays of Characters.

Unit-II

Linked List: Introduction to Linked List – Representation of Linked Lists in Computer Memory-Types of Linked List-Implementation of Linked List-Operations Performed on Linked List -Linked Stacks and Queues-Header Linked List-Manipulation of Polynomial using Linked List-Garbage Collection-Generalized Lists.

Unit-III

Stacks and Queues: Introduction-Representation of Stacks-Implementation of Stack - Polish Notation-Representation of Queues-Implementation of Queues-Circular Queue-Priority Queue- D-Queue-Applications of Stacks and Queues.

Unit-IV

Trees : Introduction-What is a Tree Data Structure?-Binary Tree - Traversal Methods in Binary Tree - Representation of Algebraic Expression using Tree Structure-Recursive Algorithms-Non-Recursive Traversal of a Binary Tree-Binary Tree Representation-Applications of Binary Tree-Conversion of Forest Into Tree-Decision Tree and Game Tree- Binary Search Trees- B-Tree-B+ Tree-Heap Tree.

Unit-V

Searching and Sorting: What is Searching?-Sequential and Binary Search-Indexed Search-Hashing Schemes-Hashing Functions-What is Hash Collision?-Sorting-Selection Sort- Bubble Sort-Insertion Sort -Quick Sort-Merge Sort-Radix Sort-Shell Sort-Heap Sort.

Graph: Introduction-Graph Representation-Traversal Schemes-Topological Sorting – Shortest Path Algorithms-Spanning Tree-Applications of Graphs.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Ability to analyze algorithms and algorithm correctness,	4
CO2:	Ability to summarize searching and sorting techniques .	3
CO3:	Ability to describe stack, queue and linked list operation.	8
CO4:	Ability to have knowledge of trees and graphs concepts.	7

Text Book:

1. Prof.Satish Jain and Shashi Singh,"DATA STRUCTURES" made simple – BPB publications, India,2006.

Reference Book:

1. D. Samanta, "Classic Data Structures", Prentice Hall of India Private Limited, 2008.
2. Data Structures Using C,ISRD Group, McGraw Hill Education, Second Edition.

CORE-V:System Analysis and Design

Semester: III **Credits: 3**

Code: 18U3CS05 **Hours: 5**

Objectives:

- **To understand the concepts System Development Life cycle.**
- **To know the concepts of Data Flow Diagram, Flow Chart and other Graphical Tools.**
- **To know how to design information system**
- **To learn about Design of input and control**
- **To understand quality assurance concepts**

Unit – I

Introduction to Information System Development: What is system Analysis and design? – Business system concepts – Categories of Information systems – System Development Strategies. Managing the application development portfolio: How system projects are begun – managing project review and selection – Preliminary investigation – Selection the project development – strategies.

Unit – II

Tools for determining system requirement: What is a requirements determination? – Fact finding techniques Tools for documenting procedure and decision. Structured Analysis development strategies: Structured analysis – Developing Data flow diagram.

Unit – III

Computer Aided systems tools: Role of tools – Categories of automated

tools – CASE Tools – Benefits of CASE. **The Analysis to design transition:** Specifying application requirements – Objectives in designing Information systems – What features must be designed? Design of computer output: How to identify computer Output needs – Designing visual Display output.

Unit – IV

Design of input and control: What concerns guide input design – Capturing data for input – Input validation. **Design of files and use of auxiliary storage devices:** Basic file terminology – Data structure Diagrams – Types of files – Methods of file organization.

Unit – V

Systems engineering and Quality assurance: Design objectives – Program structure charts – Design of software – Managing Quality assurance – Managing testing practices. **Hardware and Software selection:** Hardware selection – Software Selection.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Define and identify the project stakeholders,Conduct a feasibility analysis.	4
CO2:	Explain project deliverables .	9
CO3:	Explain the process of project Risk Management .	5
CO4:	Analyze and develop the project strategy .	2
CO5:	Define and explain the project performance criteria.	2
CO6:	Explain how to determine the project resource requirements.	2
CO7:	Explain how to develop the project budget Identify and explain the project documentation.	10

Text Book:

1. James A. Senn , “Analysis and Design of Information Systems”, TMH, New Delhi, 2nd Edition, 2009.

Reference Book:

1. Elias M.Aawd, “System Analysis and Design”, Galgotia Publications Pvt. Ltd., Second edition, 2002.

Lab III: Data Structures using C

Semester: III **Credits: 2**
Code: 18U3CSP03 **Hours: 4**

1. Write a program to insert and delete elements on array.
2. Write a program to search an element in the array using linear search.
3. Write a program to implement operations on linked list.
4. Write a program to implement operations on Stack.
5. Write a program to implement operations on Queue.
6. Write a program to convert an Infix Expression to Postfix Expression.
7. Write a program to perform Binary Tree Traversals.
8. Write a program to perform Binary Search.
9. Sort the given list of numbers using Merge Sort.
10. Sort the given list of numbers using Quick Sort

CORE-VI: Relational Database Management System

Semester: IV **Credits: 3**
Code: 18U4CS06 **Hours: 4**

Objectives:

- **To understand the concepts of Database concepts**
- **To understand the concepts of Relational Calculus**
- **Develop the logical design of the database using data modeling concepts such as entity-relationship diagrams**
- **To develop programming skills in PL/SQL**
- **Create a relational database using a relational database package, function and trigger.**

Unit-I

Introduction to Database Management Systems: Information-Data and Data Management –File-based Data Management-Database Systems-Organization of a Database-Characteristics of Data in database-Database Management systems- Functions of DBMS-Components of a DBMS- Data Dictionary-Database Users. **Entity-Relationship (E-R) Modeling:** Introduction-E-R Model-Components of an E-R Model-E-R Diagram Conventions- Relationships-Composite Entities-Entity List-E-R Diagrams (ERDS)-E-R Modeling Symbols

Unit – II

Database concepts: A Relational approach. **Database Design:** Data Modeling and Normalization. **Oracle 9i:** An Overview.

Unit-III

Oracle Tables: Data Definition Language (DDL). **Working with Tables:** Data Management and Retrieval. **Working with Tables:** Functions and Groupings.

Unit – IV

Multiple Tables: Joins and Set Operators. **Advanced Features:** Objects, Transactions, and Data Control. **PL/SQL:** A programming Language. More on PL/SQL: Control Structures and Embedded SQL.

Unit – V

PL/SQL Cursors and Exceptions.**PL/SQL Composite Data Types:** Records, Tables, and VArrays.**PL/SQL Named Blocks:** Procedures, Functions, Package and Trigger.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Explain the features of database management systems and Relational database,	1
CO2:	Design conceptual models of a database using ER modeling for real life applications and also construct queries in Relational Algebra.	2
CO3:	Create and populate a RDBMS for a real life application, with constraints and keys, using SQL, Retrieve any type of information from a data base by formulating complex queries in SQL.	7
CO4:	Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database.	4
CO5:	Build indexing mechanisms for efficient retrieval of information from a database	9

Text Books:

1. Alexis Leon,Mathews Leon ,"Fundamentals of Database Management Systems",Tata McGraw Hill-2006 (Unit-I)
2. Nilesh Shah, "Database Systems Using Oracle", PHI Private Ltd, Second Edition, 2009. (Unit: II,III,IV,V)

Reference book:

1. Abraham Silberschatz,Henry F.Korth, S.Sudarshan, "Database System Concepts", McGraw- Hill Fifth Edition, 2006.
2. Ramez Elmasri, "Database Systems: Models, Languages, Design and Application" , Pearson Education, 2014.

CORE-VII: Operating Systems

Semester: IV **Credits: 4**
Code: 18U4CS07 **Hours: 5**

Objectives:

- **To give an overview of Operating System**
- **To Understand the concepts of Deadlock, Concurrency and Semaphores**
- **To know the concept of memory management and segmentation**
- **To understand the scheduling concept**

Unit – I

Operating System overview: Operating system objectives and functions-Evolution of Operating System – Major achievements. description Process and control: Process – Process states – Process description and control.

Unit – II

Threads: Process and threads - Concurrency: Principles of concurrency – Mutual exclusion – Semaphores – Message passing. **Deadlock:** Principles of deadlock – Deadlock prevention – Deadlock avoidance – Deadlock detection.

Unit – III

Memory management: Requirements **–** Memory partitioning – Paging – Segmentation. **Virtual memory:** Hardware and control structures – Operating system software.

Unit – IV

Uniprocessor scheduling: Types of processor – Scheduling – Scheduling

algorithm – Multiprocess scheduling. **I/O management and disk scheduling:** I/O Devices – Organization of the I/O function – I/O buffering – Disk scheduling.

Unit – V

File management: Overview – File organization & Access – File directories – File sharing – Record Blocking – Secondary storage management – Computer Security Threats.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Analyze the structure of OS and basic architectural components involved in OS design.	1
CO2:	Analyze and design the applications to run in parallel either using process or thread models of different OS.	6
CO3:	Analyze the various device and resource management techniques for timesharing and distributed systems, Understand the Mutual exclusion.	6, 5
CO4:	Deadlock detection and agreement protocols of Distributed operating system.	4
CO5:	Interpret the mechanisms adopted for file sharing in distributed Applications.	4
CO6:	Conceptualize the components involved in designing a contemporary OS	5

Text Book:

1. William Stallings, “Operating Systems – Internals & Design Principles”, Prentice Hall of India Pvt. Ltd., New Delhi – 110001, 5th Edition, 2008.

Reference Book:

1. Achyut S.Godbole, Atul Kahate, “Operating Systems”, TMH, 2004.

Lab IV: RDBMS

Semester: IV **Credits: 2**
Code: 18U4CSP04 **Hours: 4**

1.Create an Oracle Table

ii) Displaying information

iii) Altering a table

iv) Dropping, renaming and truncating a table

2. i) Retrieving data from a table

ii) Arithmetic operations

3. Built in Functions and Grouping

4. Joins and set operations

5. Views, Sequences and Synonyms

6. Selection Structure

7. Looping structure

8. Data Manipulation in PL/SQL

9. PL/SQL Exception

10. Trigger

CORE-VIII: Event Driven Programming

Semester: V **Credits: 4**

Code: 18U5CS08 **Hours: 4**

Objectives:

- **To familiar with the Visual Basic software**
- **To know about the variables, editor features and decision maker**
- **To Understand about the MDI applications**
- **To know the procedure of DAO and ADO controls.**

Unit – I

What is Visual Basic – Features of VB – Visual Basic Editions – The Visual Basic Philosophy - Developing an Application. Creating an Application: Objectives – The Tool Box – Project Explorer- The Properties Window – The Form Window- Understanding Projects – What Does Visual Basic6 Have for you to Create Applications. Forms and Controls: Objectives – The Form- Working with a Control – Opening the Code Window.

Unit –II

Variables in VB: What is Variable – Multidimensional Array – Dynamic Array – The Preserve Keyword. Writing Code in VB – The Code Window – The Anatomy of a Procedure – Editor Features – The Decision Maker … If– The loop-The While Loop – Select Case … End Select. Working with Files: VB File System

Controls – Types of Files – Working With Files.

Unit – III

Menus: Building the User Interface – All about Menus. MDI Applications - Why MDI Forms – Features of an MDI Form – Loading MDI Forms and Child Forms – The Active Form Property. Debugging Tips: Objectives – The Debugging Methods. The Common Dialog Control: Working with the Common Dialog Control – The File Open Dialog Box – Saving a File – Changing the Color – Printing a Document-Rich Textbox Control-Changing the Color of the Selected Text – Changing the Indent.

Unit – IV

Introduction to Databases – Why Databases - What is Database – Which Database. Working with Data Control: The Data Control – The Bound Controls – Caution – Coding – Update Record and Update Controls Method – Finding a Record – The DBgrid Control . Data Access Objects: The Jet Database Engine – Functions of the Jet Database Engine – SQL – The DAO Object Model.

Unit – V

ActiveX Data Objects: Why ADO – Establishing a Reference. Crystal and Data Reports: Crystal Reports – Data Reports. ActiveX: What is ActiveX - Why ActiveX? ActiveX and Web Pages: ActiveX and Internet.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Create well-designed programs, demonstrate familiarity with elementary information systems concepts.	4
CO2:	Demonstrate familiarity with visual and event-driven programming concepts and techniques	5

CO3:	Demonstrate familiarity with the basic concepts of visual programming.	8
CO4:	Demonstrate familiarity with the tools and techniques for constructing attractive and useful user interfaces.	7
CO5:	Develop complete programs that solve intermediate problems dealing with various data types, elementary data structures, and objects.	9

Text Book:

1. Mohammed Azam "Programming with Visual Basic 6.0", Vikas Publishing House (P)Ltd,2000.

Reference Book:

1. Noel Jerke, " The Complete Reference Visual Basic 6.0", TMH, 2002.

CORE-IX: Java Programming

Semester: V **Credits: 4**
Code: 18U5CS09 **Hours: 4**

Objectives:

- **To understand the concepts of Object Oriented Programming**
- **To gain knowledge about basic Java language syntax and semantics to write Java programs and use concepts such as variables, conditional and iterative execution methods etc**
- **To understand the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms**
- **To understand the principles of inheritance, packages and interfaces**

Unit-I

Fundamentals of Object Oriented Programming-Java evolution-Overview of java language.

Unit-II

Constants, Variables, and Data types-Operators and Expressions-Decision Making and Branching.

Unit-III

Decision making and Looping-Classes, Objects and Methods- Arrays, Strings and Vectors- Interfaces.

Unit-IV

Packages-Multithreaded programming-Managing Errors and Exceptions.

Unit-V

Applet Programming-Graphics Programming.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understanding of the principles and practice of object oriented analysis and design in the construction of robust, maintainable programs which satisfy their requirements.	1
CO2:	Ability to implement, compile, test and run Java programs comprising more than one class, to address a particular software problem	3
CO3:	Demonstrate the ability to use simple data structures like arrays in a Java program	5
CO4:	Understand the concept of package, interface, multithreading and File handling in java	8
CO5:	Ability to make use of members of classes found in the Java API (such as the Math class)	9

Text Book:

1. E. Balagurusamy,"Programming with Java", Tata McGraw Hill Pub. Ltd., 5th Edition, New Delhi.

Reference Book:

1. Muthu C, "Programming with Java", 2nd Edition, Vijay Nicole Publications, 2014.
2. Herbert Schild, "Java: The Complete Reference," Ninth Edition, Oracle Press, 2014

CORE-X: Linux Programming

Semester: V **Credits: 5**

Code: 18U5CS10 **Hours: 5**

Objectives

- **Understanding the basic set of commands and utilities in Linux/UNIX systems.**
- **To learn to develop software for Linux/UNIX systems.**
- **To learn the important Linux/UNIX library functions and system calls.**
- **To understand the inner workings of UNIX-like operating systems.**
- **To obtain a foundation for an advanced course in operating systems.**

Unit I:

Linux Introduction and Installation: Linux-Advantages-Red Hat Linux-New Features Installation procedures and Methods. Using Desktop-GNOME-KDE-Linux Commands Accessing and Running Applications

Unit II:

Installing Red Hat Linux Applications, Running Window Application, Running Window, DOS and Macintosh Applications –Tools for using Internet and Web.

Unit III :

Administration: Understanding System Administration: Root login-super user-GUI tools, commands and Log files-Configuring Hardware-File System and Disk Management Monitoring performances.

Unit IV:

Setting Up and Supporting users: Creating user accounts – Setting user defaults –Creating Desktops-Modifying and Deleting Accounts.

Unit V:

Security Issues: Hacker versus Cracker-Password Protection- Protection from break-in Filtering Network Access-Firewalls-Detecting Instructions – Encryption techniques

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Know different commands in LINUX, ,	1
CO2:	Analyze the structure of OS and basic architectural components involved in OS design	4
CO3:	Able to admin the system	5
CO4:	Understand security issues	9
CO5:	Know about encryption methods	10

Text Book

1.Christopher Negus ―Red Hat Linux 9 Bible‖, WILEY- Dream tech India Pvt.Ltd,New Delhi, First Edition, 2003

Reference Book

1.Thomas Schenk, ―Red Hat Linux System Administration‖, Techmedia, New Delhi,2003.

Lab IV: Event Driven Programming

Semester: V **Credits: 2**
Code: 18U5CSP05 **Hours: 3**

1. Construction of an Arithmetic Calculator (Simple)
2. Working with List Box and Combo Box Control
3. Working with MDI Form
4. Working with Rich Text Box Control
5. Create an Animation Using picture box control
6. Working with File Open Dialog Box
7. Working with Save Dialog Box
8. Preparation of Students Mark Sheet.
9. Personal Information System (Using Tables)
10. Library Information System (Using Tables).

Lab VI: Java Programming

Semester: V **Credits: 2**

Code: 18U5CSP06 **Hours: 3**

1. Classes and Objects.
2. Strings
3. Constructors.
4. Inheritance.
5. Packages
6. Interfaces.
7. Exception Handling.
8. Threads.
9. Applet.
10. Graphics

CORE-XI: Open Source Technologies

Semester: VI **Credits: 4**

Code: 18U6CS11 **Hours: 4**

Objectives:

- **To familiar with the PHP and MySql.**
- **To know the concepts of branching and looping**
- **To understand how to create tables**
- **To know how to connect databases**

Unit: I

Getting Started: Introducing PHP & MY SQL-Understanding The Cloud-Installing Abyss Web Server-Installing The PHP Engine-Configuring Abyss For PHP-Embedding PHP Script- Installing The MYSQL Server-Employing The MYSQL Client-Creating MYSQL Users- Connecting MYSQL With PHP. Performing Operations: Creating Variables-Managing Strings- Producing Arrays-Sorting Arrays-Describing Dimensions-Doing Arithmetic-Comparing Values- Assessing Logic-Defining Constants.

Unit-II:

Controlling Progress: Branching Alternatives-Switching Branches-Performing Loops- Looping While True - Breaking From Loops-Creating Functions-Passing Arguments-Returning Values. Producing Forms: Performing Actions-Checking Set Values-Validating From Data- Sending Hidden Data-Handling Submissions-Making Sticky Forms-Surrounding Forms- Appending Link Data-Moving Location.

Unit-III:

Assembling Tables: Introducing Tables- Creating Tables-Defining Data Types-Adding Modifiers-Setting Primary Keys-Altering Tables. Handling Data:

Inserting Data-Updating Columns-Updating Fields-Deleting Data-Selecting Data-Retrieving Columns-Retrieving Rows- Sorting Data-Setting Direction-Making Comparisons.

Unit-IV:

Connecting Databases: Making Connection-Executing Queries-Retrieving Results- Applying Changes-Counting Records-Updating Records-Validating Results-Ensuring Security- Handling Errors. Registering Users: Creating A Users Database - Providing A Register Page- Processing Registrations-Providing A Login Page-Supplying Login Tools-Processing Login Attempts-Confirming Login Success.

Unit-V:

Providing Forums: Creating A Forum Database-Providing A Forum Page-Supplying A Message Form-Processing Posted Messages- Confirming Post Success. Processing Shops: Creating A Shop Database-Creating An Orders Databases-Providing A Shop Page-Confirming Cart Additions-Processing Shopping Carts-Checking Out Orders-Confirming Logout Success.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Able to recognize the benefits and features of Open Source Technology.	1
CO2:	Interpret, Contrast and compare open source products among themselves.	6
CO3:	Understand and demonstrate Version Control System along with its commands	8

Text Book:

1. Mike McGrath,"PHP & MYSQL" –TATA McGraw– Hill Education Private Limited, New Delhi-2012.

Reference Books:

1. "Head First PHP & MySql", Lynn Beighley, Michael Morrison, O'Reilly Media, Inc, 2008

CORE-XII: Computer Networks

Semester: VI **Credits: 5**

Code: 18U6CS12 **Hours: 5**

Objectives:

- **To understand about different types of networks**
- **To know the transmission media**
- **To understand about different layers of networks**
- **To give the routing, congestion algorithm and cryptography.**

Unit - I

Network Hardware**:** LAN – WAN – MAN – Wireless – Home Networks. Network Software: Protocol Hierarchies – Design Issues for the Layers – Connection-oriented and connectionless services – Service Primitives – The Relationship of services to Protocols. Reference Models**:** OSI Reference Model – TCP/IP reference Model – Comparison of OSI and TCP/IP -Critique of OSI and protocols – Critique of the TCP/IP Reference model.

Unit - II

Physical Layer - Guided Transmission Media: Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics. Wireless Transmission: Electromagnetic Spectrum – Radio Transmission – Microwave Transmission – Infrared and Millimeter Waves – Light Waves. Communication Satellites: Geostationary, Medium-Earth Orbit, Low Earth-orbit Satellites – Satellites versus Fiber.

Unit - III

Data-Link Layer: Error Detection and correction – Elementary Data-link Protocols – Sliding Window Protocols. Medium-Access Control Sub Layer**:** Multiple Access Protocols – Ethernet – Bluetooth.

Unit - IV

Network Layer**:** Routing algorithms – Congestion Control Algorithms. Transport Layer: Elements of Transport Protocols – Internet Transport Protocols: TCP.

Unit – V

Application Layer**:** DNS – E-mail. Network Security: Cryptography – Symmetric Key Algorithms – Public Key Algorithms – Digital Signatures.

Co.No	Upon completion of this course, students will be able to	PSO addressed
CO1:	Independently understand basic computer network technology, understand and explain Data Communications System and its components.	1
CO2:	Identify the different types of network topologies and protocols, enumerate the layers of the OSI model and TCP/IP.	4
CO3:	Explain the function(s) of each layer, identify the different types of network devices and their functions within a network	5
CO4:	Understand and building the skills of submitting and routing mechanisms,	7
CO5:	Familiar with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.	9

Text Book:

1. Andrew S. Tanenbaum , “COMPUTER NETWORKS” , 4th edition, PHI.

Reference Books:

1. Achyut Godbole , “DATA COMMUNICATION AND NETWORKS” , TMH- 2007.
2. Uyless Black , “COMPUTER NETWORKS Protocols, Standards, and Interfaces” , 2nd ed, PHI.

Lab V : PHP and MYSQL

Semester: VI **Credits: 2**

Code: 18U6CSP07 **Hours: 3**

1. PHP Program to create an array and describe their dimensions.
2. PHP Program to sort arrays.
3. PHP Program to compare values.
4. Write PHP program to print first 10 Fibonacci numbers.
5. PHP Program to implement AND and OR Truth Table.
6. PHP Program to validate form data.
7. Table manipulation using MySql.
8. User Registration Page Creation.
9. Forum Page Creation.
10. Shop processing.

Lab VI : Software Development

Semester: VI **Credits: 3**
Code: 18U6CSP08 **Hours:4**

The objective of the Mini project is to motivate the students to work in emerging/latest technologies, help the students to develop ability, to apply theoretical and practical tools/techniques to solve real life problems related to industry, academic institutions and research laboratories.

The project is of 4 hours/week for one (semester VI) semester duration and a student is expected to do planning, analyzing, designing, coding, and implementing the project. The initiation of project should be with the project proposal. The synopsis approval will be given by the project guides.

The project proposal should include the following:

- Title
- Objectives
- Input and output
- Details of modules and process logic
- Limitations of the project
- Tools/platforms, Languages to be used
- Scope of future application

For the project work, the guide(internal) evaluate the work for 40 marks based on the performance of the candidates during the development of the project and the external examiner will evaluate the project work as follows:

Project Report - 30 marks Viva-Voce – 30 marks

The Project work should be either an individual one or a group of not more than three members

Elective -I: Web Technology

Semester: V **Credits: 3**
Code: 18U5CSE01 **Hours: 4**

Objectives:

- **To understand the concepts of TCP/IP**
- **To know the basics of WWW**
- **To understand ASP ,JSP**
- **To know XML and**

WAP Unit-I

TCP/IP: TCP/IP Basics – Why IP address – Logical Address - TCP/IP Example- The concept of IP address – Basics of TCP – Features of TCP – Relationship between TCP and IP – Ports and Sockets – Connections- Active Open and Passive Open - TCP Connections – What makes TCP reliable?– TCP packet format - Persistent TCP connections – UDP – Differences between TCP and UDP.

Unit-II

DNS – E-mail – FTP – TFTP – History of WWW – Basics of WWW and Browsing – Web Browser Architecture - Remote Login (TELNET).

Unit-III

Introduction to Web Technology: Web pages – Tiers – Concept of a Tier – Comparison of Microsoft and Java Technologies – Web Pages – Static Web Pages – Plug-ins – Frames –Forms. Dynamic Web Pages: Need – Magic of Dynamic Web Pages – Overview of Dynamic Web Page Technologies – Overview of DHTML – Common Gateway Interface – ASP – ASP Technology – Modern Trends in ASP –Java Servlets – Java Server Pages.

Unit-IV

Active Web Pages: Active Web Pages is a better solution – Java Applets – Why are Active Web Pages Powerful? – Lifecycle of Java Applets – ActiveX Controls – Java Beans. Middleware and Component-Based E-Commerce Architectures: CORBA – Java Remote Method Invocation – DCOM.

Unit-V

XML: SGML – Basics of XML – XML Parsers. WAP: Limitations of Mobile devices – Emergence of WAP – WAP Architecture– Concerns about WAP and its future – Alternatives to WAP.

Co.No	Upon completion of this course, students will be able to	PSO addressed
CO1:	Familiar with TCP/IP basics	4
CO2:	Create web pages using DHTML and Cascading Styles sheets, create interactive web applications	5
CO3:	Analyze a web page and identify its elements and attributes.	6
CO4:	Create web pages using HTML, DHTML and Cascading Styles sheets.	8
CO5:	Create XML documents and XML Schema.	10

Text Book:

1. Achyut S.Godbole & Atul Kahate,"WEB TECHNOLOGIES TCP/IP to Internet Application Architectures ",TMH, 2003.

   (UNIT-I: chapter 3,4), (UNIT-II: chapter 5,6), (UNIT- III: chapter 8,9),

   (UNIT- IV: chapter 10.15), (UNIT-V: chapter 17,18)

Reference Book:

1. C.Xavier, "Web Technology and Design", 1st Edition, New Age International, 2011.

Elective -II : Client / Server Technology

Semester: V **Credits:3**
Code: 18U5CSE02 **Hours:4**

Objectives:

- **To explore many types of client/server computing and performance**
- **To know the server functionality**
- **To understand OSI Connectivity**

Unit-I

Client/Server Computing – Advantages of Client / Server Computing – Technology Revolution – Connectivity – Ways to improve Performance – How to reduce network Traffic

Unit-II

Components of Client/Server Applications – The Client**:** Role of a Client – Client Services – Request for Service. Components of Client/Server Applications – The Server: The Role of a Server – Server Functionality in Detail – The Network Operating System – What are the Available Platforms – The Server Opera ting system.

Unit-III

Components of Client/Server Applications – Connectivity**:** Open System Interconnect – Communications Interface Technology – Inter process communication – WAN Technologies.

Unit-IV

Components of Client/Server Applications–Software**:** Factors Driving demand for application software development – Rising Technology Staff costs – Need to improve Technology – Need for Common Interface across Platforms – Client/Server System Development Methodology. Components of Client/Server Applications–Hardware**:**

Hardware / Network Acquisition – PC-Level Processing U nits – Machintosh, notebooks, Pen – UNIX Workstation – x-terminals – Disk, Tape, Optical Disks, NIC and UPS.

Unit-V

Components of Client/Server applications–Service an d Support**:** System Administration. The Future of Client/Server Computing**:** Enabling Technologies – Transformational Systems.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand, and identify software and hardware development environment as client and server respectively.	1
CO2:	Understand, and determine database communication in client-server environment,	3
CO3:	Understand, and determine distributed file system architecture	6
CO4:	Find, learn and use client-server based software development tool,	7
CO5:	Understand and discuss the use of data base management system and data hierarchy in an organization	9

Text Book :

1. Patrick Smith, Steve Guen ferich , "CLIENT / SERVER COMPUTING " , 2nd Edition,
2. Prentice Hall of India Private Limited, New Delhi.

   Unit – I(Chapter-II,III), Unit-II(Chapter-IV), Unit- III (Chapter – VI), Unit- IV(Chapter-V), Unit-V(Chapter – XX,XXII)

Elective -III: Computer Architecture

Semester: V **Credits: 3**
Code: 18U5CSE03 **Hours: 4**

Objectives:

- **General topics include structure, function and design methodology**
- **To know the concept of memory management**
- **To understand the processor design and control design.**

Unit-I

Introduction - Organization and Architecture, Structure and Function Computer Evolution and Performance - A Brief History of Computers, Designing for Performance, Pentium and Power PC Evolution. System Buses - Computer Components, Computer Function, Interconnection Structures, Bus Interconnection, PCI, Future bus.

Unit-II

Internal Memory - Computer Memory System Overview, Semiconductor Main Memory, Cache Memory, Advanced DRAM organization. External Memory - Magnetic Disk, RAID, Optical Memory, Magnetic Tape. Input / Output - External Devices, I/O Modules, Programmed I/O, Interrupt-Driven I/O,DMA,I/O channels and Processors, The External Interface. Operating System Support - Operating System Overview, Scheduling, Memory Management.

Unit-III

Computer Arithmetic - ALU, Integer Representation, Integer Arithmetic, Floating

- Point Representation, Floating - Point Arithmetic Instruction Sets: Characteristics and Functions- Machine Instruction Characteristics, Types of operands, Types of Operations, Assembly Language. Instruction Sets - Addressing, Instruction Formats.

Unit-IV

CPU Structure and Function - Processor Organization, Register Organization, The Instruction Cycle, Instruction Pipelining, The Pentium Processor, The PowerPC Processor. RISC - Instruction Execution Characteristics, The use of a Large Register File, Compiler Based Register Optimization, Reduced Instruction Set Architecture, RISC Pipelining, Motorola 88510, MIPS R4650, The RISC versus CISC Controversy.

Unit-V

Superscalar Processors - Overview, Design Issues, PowerPC, Pentium Control Unit Operation - Micro-Operation, Control of the CPU, H/W Implementation. Micro programmed Control - Basic Concepts, Microinstruction Sequencing, Microinstruction Execution, TI 8800, Applications of Microprogramming.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Ability to understand basic structure of computer.	1
CO2:	Ability to perform computer arithmetic operation	3
CO3:	Ability to understand control unit operations.	4
CO4:	Ability to design memory organization that uses banks for different word size operations	5
CO5:	Ability to understand the concept of I/O organization	6
	Ability to understand types of memory and interprocessor communication	7

Text Book:

1. William Stallings, “Computer Organization and Architecture ", PHI , Fourth Edition, 1997.

Reference Books:

1. V.Carl Hamacher, ZvoKog G.Vranesic and Safwat G.Zaky, "COMPUTER ORGANIZATION", McGraw-Hill, ISE, 1984.
2. M.Morris Mano, "COMPUTER SYSTEMS ARCHITECTURE" ,PHI, Third Edition , 1997.

Elective - II : Software Testing

Semester: V **Credits: 3**
Code: 18U5CSE04 **Hours: 4**

Objectives:

- **To understand the Fundamental concepts in testing**
- **To know the software life-cycle**
- **Able to know static test techniques**
- **To understand test design, test management and tools support for testing**

Unit -I

Building a Software Testing Strategy – Software Testing Design Techniques – Software Testing Tools and Selection of Test Automation Products – Software Testing Lifecycle and Software Testing Process

Unit -II

Testing Effort Estimation and Test Planning – Software Test Effort Estimation Technique – Pre- Development Testing Requirements and Design Phase – Best Practices in Program Phase Unit, System and Integration Testing

Unit- III

A Case Study on Acceptance Testing – Implementation an Effective Test Management Process – Building an Effective Test Organization – Performance Issues and Optimization Techniques

Unit -IV

Choosing a Load Testing Strategy – Dodging the Bullets – Validating Mission-Critical Server Software for Reliability – Probing the Blind Spot – Testing in Today's Business and Usability

Unit- V

Testing of Web-based Applications – Testing of Embedded Software System used in Aerospace Applications – Testing Application for Security – Testing Metrics, Best Practices and Benchmarks

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understands the Fundamental concepts in testing.	2
CO2:	Understands the types of testing,	3
CO3:	Understands static test techniques, test design, test management a	4
CO4:	Know how to test throughout the software life-cycle.	6
CO5:	Application of software testing techniques in various environments	7

Text Book:

1. Renu Rajani and Pradeep Oak, "Software Testing Effective Methods, Tools and Techniques", Tata McGraw-Hill.

Reference Book:

1. William E. Perry, "Effective Methods for Software Testing", Wiley India, Third Edition, 2007.

Elective - II: Software Project Management

Semester: V **Credits: 3**

Code: 18U5CSE05 **Hours: 4**

Objectives:

- **To know of how to do project planning for the software process.**
- **To learn the cost estimation techniques during the analysis of the project.**
- **To understand the quality concepts for ensuring the functionality of the software**

Unit – I

Introduction to software project management – Step Wise: an overview of project planning – Programme management and project evaluation.

Unit – II

Selection of an appropriate project approach – Software effort estimation – Activity planning

Unit – III

Risk management: Introduction – Risk – Categories of risk – A framework for dealing withrisk – Risk identification –Risk assessment – Risk planning - Risk management – Evaluating risk to the schedule. Resource allocation

Unit – IV

Monitoring and control : Creating the framework – Collecting the data – Visualizing progress– Cost monitoring – Earned value analysis – Prioritizing monitoring – Change control. Managing contracts: The supply process – Types

of contract –Stages in contract placement – Typical terms of a contract – Contract management – Acceptance.

Unit – V

Managing people and organizing teams: Understanding behavior – Organizational behavior – Motivation – Working in groups – Decision making – Leadership – Organizational structures– Dispersed and virtual teams – The influence of culture – Stress- Health and safety Software quality: The place of software quality in project planning - The importance of software quality – Defining software quality – Practical software quality measures – Product versus process quality management – External standards – Techniques to help enhance software quality – Quality plans.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand the activities during the project scheduling of any software application.	1
CO2:	Learn the risk management activities and the resource allocation for the projects.	4
CO3:	Can apply the software estimation and recent quality standards for evaluation of the software projects	5
CO4:	Can apply the software estimation and recent quality standards for evaluation of the software projects	8
CO5:	Acquire knowledge and skills needed for the construction of highly reliable software project	9

Text Book:

1. Bob Hughes and Mike Cotterell , " Software Project Management " , Tata McGraw-Hill, 4th Edition.

Elective - II :Software Engineering

Semester: V **Credits: 3**

Code: 18U5CS06 **Hours: 4**

Objectives:

- **To understand the Software product and System Engineering**
- **To know the concepts of Object Oriented Software Engineering**
- **To understand about different testing strategies in the software development.**
- **To give the reengineering and reverse engineering concepts.**

Unit-I

Introduction: The Evolving Role of Software-Software-The Changing Nature of Software – Legacy Software-Software Myths. The Software Process – Layered Technology-Process Framework -CMMI-Process Patterns-Process Assessments-Personal and Team Process Models- Process Technology-Product and Process. Process Models-Prescriptive Models-Waterfall Model- Incremental – Evolutionary-Specialized Process Models-The Unified Process Models.

Unit-II

An Agile View of Process –What is Agility?-What is an Agile Process?-Agile Process Models. System Engineering-Computer Based Systems-The System Engineering Hierarchy-Business Process Engineering-An Overview Product Engineering-An Overview System Modeling. Requirement Engineering: A Bridge To Design and Construction-Tasks-Initiating the Requirements Engineering Process-Eliciting Requirements-Develop Use Cases-Building the Analysis Model-Negotiating, Validating Requirement.

Unit-III

Creating an Architectural Design –Software Architecture –Data Design-Architectural Styles and Patterns- Architectural Design-Assessing Alternative Architectural Designs-Mapping Data Flow into Software Architecture. Performing User Interface Design-Golden Rules-User Interface Analysis Design-Interface Analysis-Interface Design Steps-Design Evaluation

Unit-IV

Testing Strategies: A Strategic Approach to Software Testing-Strategic Issues-Test Strategies for Conventional Software-The Strategies for Object Oriented Software-Validation Testing-System Testing-The Art of Debugging. Testing Tactics-Software Testing Fundamentals-Black Box Testing-White Box, Basis Path, Control Structure and Object Oriented Testing Methods.

Unit-V

Testing Applicable at Class Level- Inter Class Test Case Design-Testing for Specialized Environments, Architectures and Application. Project Management: Management Spectrum-The People –The Product –The Process-The Project-WHH Principle. Reengineering: Business Process Reengineering-Software, Reverse Reengineering –Reconstructing-Forward and Economics of Reengineering.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Select and implement different software development process models.	2
CO2:	Extract and analyze software requirements specifications for different projects.	4
CO3:	Develop some basic level of software architecture/design	5
CO4:	Apply standard coding practices.	7
CO5:	Define the basic concepts and importance of Software project management concepts like cost estimation, scheduling and reviewing the progress	8

Text book:

1. Roger S. Pressman," SOFTWARE ENGINEERING" A Practitioner's approach ,6 th edition, NEWDELHI.

Reference book:

1. Roger S. Pressman," SOFTWARE ENGINEERING" A Practitioner's Approach ,5th edition, NEWDELHI.
2. Roger S. Pressman," SOFTWARE ENGINEERING" A Practitioner's Approach ,8 th edition, NEWDELHI.

ELECTIVE - III: Data Warehousing and Data Mining

Semester: VI **Credits: 3**
Code: 18U6CSE07 **Hours: 4**

Objectives:

- **To understand the concepts of Data mining**
- **To understand the concepts of different Clustering Techniques**
- **To know the concepts of Web Mining and Data Warehousing**

Unit – I

Introduction**:** What is Data mining?-Why Data mining now?-The Data mining process- Data mining application – Data mining techniques – Data mining case studies- The future of data mining – Guide lines for successful data mining- Data mining software - Association Rules Mining**:** Introduction**-** Basics-The Task and a Naïve algorithm- The Apriori algorithm – Improving the Efficiency of the Apriori algorithm – Apriori-Tid-Direct Hashing and Pruning(DHP)-Dynamic Itemset Counting(DIC)- Mining frequent pattern without candidate generation (FP-growth) – Performance evaluation of algorithms-Software for association rule mining.

Unit – II

Classification **:** Introduction – Decision Tree – Building a Decision Tree-The Tree Induction algorithm-Split Algorithm Based on Information theory- Split Algorithm Based on Gini Index- Over fitting and pruning – Decision Tree rules-

Decision Tree Summary- Naïve Bayes Method- Estimation Predictive Accuracy of Classification Methods - Other Evaluation Criteria for Classification Method – Classification Software.

Unit – III

Cluster Analysis: What is Cluster Analysis? –Desired Features of Cluster Analysis- Types of Data – Computing Distance -Types of Cluster Analysis Methods - Partitional Methods – Hierarchical Methods – Density Based Methods –Dealing with Large Databases – Quality and Validity of Cluster Analysis Methods - Cluster Analysis Software.

Unit – IV

Web Data Mining **:** Introduction - Web Terminology and Characteristics- Locality and Hierarchy in the Web- Web Content Mining-Web Usage Mining- Web Structure Mining – Web Mining Software.

Unit – V

Data Warehousing**:** Introduction – Operational Data Stores- ETL- Data Warehouses – Data Warehouse Design – Guidelines for Data Warehouse Implementation - Data Warehouse Metadata- Software for ODS, ZLE, ETL and Data Warehousing**.** Online Analytical Processing (OLAP): Introduction – OLAP- Characteristics of OLAP Systems – Multidimensional View and Data Cube - Data Cube Implementations - Data Cube Operations-Guidelines for OLAP Implementation – OLAP Software.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Describe the fundamental concepts, benefits and problem areas associated with datawarehousing.	1
CO2:	Describe the various architectures and main components of a data warehouse.	2

CO3:	Design a data warehouse, and be able to address issues that arise when implementing a data warehouse.	5
CO4:	Compare and contrast OLAP and data mining as techniques for extracting knowledge from a data warehouse.	8

Text Book:

1. "Introduction to Data mining with Case Studies", G.K. Gupta, PHI Private Limited, New Delhi, 2009.

Reference Book :

1. Jiawei Han & Micheline Kamber, " Data Mining Concepts & Techniques" , Academic Press, 2001.

ELECTIVE: Natural Language Processing

Semester: VI **Credits: 3**
Code: 18U6CSE08 **Hours: 4**

Objectives:

- **To understand natural language processing**
- **To learn how to apply basic algorithms**
- **To know the strategies of semantic interpretation**
- **To conceive basics of knowledge representation**

Unit – I

Introduction to Natural Language Understanding – Linguistic Background – Grammars and Parsing – Features and Augmented Grammars.

Unit – II

Grammars for Natural Languages – Towards Efficient Parsing – Ambiguity Resolution Statistical Methods – Semantics and Logical Forms.

Unit – III

Linking Syntax and Semantics – Resolution – Strategies for Semantic Interpretation – Scoping and Interpretation of Noun Phrases.

Unit – IV

Knowledge Representation and Reasoning – Local Discourse Context and

Reference – World Knowledge – Discourse Structure.

Unit – V

Conversational Agent – Logic and Natural Language – Model – Theoretic Semantics – Semantics of Set Theoretic Models.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand the concept parsing,	1
CO2:	Able to understand grammars in natural languages.	4
CO3:	Be able to infer meaning of new vocabulary from the surrounding context	5
CO4:	Learn how to apply basic algorithms	7
CO5:	Know the basics in knowledge representation.	8

Reference Books:

1. James Allen, “Natural Language Understanding”, Pearson Education, Second Edition.

ELECTIVE Computer Graphics

Semester: VI **Credits: 3**
Code: 18U6CSE09 **Hours: 4**

Objectives:

- **To know the basic concept of graphics algorithm**
- **To understand the 2Dand 3D transformations**
- **To acquire Visible-Surface Detection Methods and Intuitive color Concepts.**

Unit-I

Output Primitives**:** Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. Attributes of Output Primitives**:** Line Attributes – Curve attributes – Color and Grayscale Levels – Area-fill attributes
– Character Attributes.

Unit-II

2D Geometric Transformations**:** Basic Transformations–Matrix Representations – Composite Transformations–Other Transformations. 2D Viewing**:** The Viewing Pipeline–Viewing Co-ordinate Reference Frame–Window-to-Viewport Co-ordinate Transformation-2D Viewing Functions–Clipping Operations – Point, Line, Polygon, Curve, Text and Exterior clippings.

Unit-III

3D Concepts: 3D Display Methods–3D Graphics Packages.3D Object Representations: Polygon Surfaces – Curved lines and Surfaces – Quadric Surfaces – Super quadrics – Blobby Objects – Spline representations. 3D Geometric Modeling and Transformations: Translation – Rotation – Scaling – Other Transformations – Composite Transformations – 3D Transformation

functions.

Unit-IV

Visible-Surface Detection Methods**:** Classification of Visible-Surface algorithms – Back-Face Detection – Depth-Buffer Method – A-Buffer method- Scan- Line Method – Depth-Sorting Method – BSP-Tree Method – Area-Subdivision Method – Octree Methods – Ray-casting Methods – Curved surfaces – Wire frame Methods – Visibility-Detection functions.

Unit-V

Illumination Models**:** Properties of Light – Standard Primaries and the Chromaticity Diagram – Intuitive color Concepts – RGB Color Model – YIQ Color Model – CMY Color Model – HSV Color Model – Conversion between HSV and RGB models – Color selection and Applications.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understood computer graphics system, design algorithms and two dimensional transformations.	1
CO2:	Familiar with techniques of clipping, three dimensional graphics and three dimensional transformations	2
CO3:	The computer graphics course prepares students for activities involving in design, development and testing of modeling, rendering, shading and animation.	4
CO4:	Able to perform 2Dand 3D transformations	6
CO5:	Known about different color models	7

Text Book:

1. Donald Hearn, M. Pauline Baker , “COMPUTER GRAPHICS” , PHI, 2nd edition,1996.

Reference Book:

1.John f. Hughes, Andries Van Dam, Morgan Mcguire, David F. Sklar, James D. Foley, Steven K. Feiner, Kurt Akeley, "Computer GraphicsPrinciples and Practice" 3rdEdition, Pearson Education,2014.

ELECTIVE : Design and Analysis of Algorithms

Semester: VI **Credits: 3**
Code: 18U6CSE10 **Hours: 4**

Objectives:

- **To learn the Analysis of Algorithms.**
- **To understand the concepts of Algorithms**
- **Analyze the concept of algorithms and asymptotic performance of algorithms.**
- **Analyze of sorting and searching algorithms.**
- **Apply important algorithmic design strategies.**
- **Knowledge of algorithm design methods.**

Unit -I

Introduction – Notion of Algorithm – Fundamentals of Algorithmic Solving – Important Problem types – Analysis Framework – Asymptotic Notations and Basic Efficiency Classes.

Unit-II

Mathematical Analysis of Non Recursive Algorithm – Mathematical Analysis of Recursive Algorithm – Example: Fibonacci Numbers – Empirical Analysis of Algorithms – Algorithm Visualization.

Unit-III

Brute Force – Selection Sort and Bubble Sort – Sequential Search and Brute force string matching – Divide and conquer – Merge sort – Quick Sort – Binary Search – Binary tree Traversal and Related Properties.

Unit-IV

Transform and conquer – Presorting – Balanced Search trees – AVL Trees – Heaps and Heap Sort – Dynamic Programming – Warshall's and Floyd's Algorithms – Optimal Binary Search Trees – Greedy Techniques : Prim's Algorithm – Kruskal's Algorithm - Dijkstra's Algorithm – Huffman trees.

Unit-V

Backtracking – n-Queen's Problem – Hamiltonian Circuit problem – Subset sum problem – Branch and bound technique – Assignment problem – Knapsack problem – Traveling salesman problem.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To decide the appropriate data type and data structure for a given problem	2
CO2:	Analyze different mathematical algorithms	4
CO3:	Ability to select the best algorithm to solve a problem by considering various problem characteristics, such as the data size, the type of operations, etc.	5
CO4:	Compare algorithms with respect to time and space complexity	7
CO5:	Understand backtracking methods	8

Text Book:

1. A.A.Putnambekar,"Design and Analysis of Algorithms", Second Revised Edition, Technical Publications, Pune, 2009

Reference Books:

1. Anany Levitin, "Introduction to the Design and Analysis of Algorithm", Pearson Education Asia, 2003.

ELECTIVE: E-Commerce

Semester: VI **Credits:3**

Code: 18U6CSE11 **Hours: 4**

Objectives:

- **To acquire the knowledge of internet and intranet**
- **To know the concept of security issues and business process reengineering**
- **To understand legal issues.**

Unit – I

Electronic commerce: Electronic Commerce – Electronic Data Interchange – Value Added Networks - Electronic Commerce over the internet – Commerce Net. PCs and Networking: Networking – Communication Media. Electronic Mail: Computer communication system – ISO's Open System Interconnection model – Electronic Mail – The X.400 message handling system – internet mail – Email security .

Unit – II

The Internet: Internet Communication Protocols- Internet Services and Resources – Internet Mail – Internet Search – Concerns About The Internet – Internet 2. Intranets: Intranet – Intra net Services – Intranet Implementation – The Webmaster. Electronic Data Interchange: Electronic Data Interchange – Costs and Benefits – Components of EDI Systems – EDI Implementation Issues – Legal Aspects.

Unit – III

The UN/EDIFACT Standard: Introduction – An EDIFACT Message –

Interchange structure – UN/EDIFACT Message Directories. The Internet and Extranets for Electronic Commerce: E-Commerce – Commerce over The Internet – Commerce Over Extranets. Identification and Tracking Tools for Electronic Commerce: The EAN System – EANCOM – Article Numbering – Bar Coding – The serial shipping container code and the EAN label – EAN Location Numbers. Internet Bandwidth and Technology Issues: Bandwidth Issues – Technology Issues for the Internet/NII – NII Standard – NII services – Actors in the NII- GII.

Unit – IV

Security Issues: Security Concerns – Security solutions – Electronic Cash over the Internet – Security and UN/EDIFACT Message – Internet Security. Business Process Reengineering: Introduction – Approach to BPR – Strategic Alignment Model – BPR Methodology.

Unit – V

Legal Issues: Legal Issues – Risks: Paper Documents Versus Electronic Document – Technology for Authenticating an Electronic Document – Laws for E-Commerce – EDI Interchange Agreement – Legal Issues for Internet Commerce. E-Commerce in India: EDI in India. The Internet in India – Laws for E-Commerce in India. Getting Started: Setting Up a Website – web Servers – Business – To- Business EC – Payment for Goods and Services – Bottlenecks.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Explain the components and roles of the Electronic Commerce environment	2
CO2:	Explain how businesses sell products and services on the Web.	4
CO3:	Describe the qualities of an effective Web business presence.	6
CO4:	Describe E-Commerce payment systems, Explain how to meet the needs of Web site visitors	8
CO5:	Understand legal issues in E-Commerce	9

Text book:

1. Kamalesh K.Bajaj , Debjani Nag ,"E-Commerce The Cutting Edge of Business", TMH , New Delhi , 2000.

Reference Book:

1. David Whiteley , "E-Commerce Strategy Technologies and Applications", Tata Mc- Graw- Hill.

Elective III: Artificial Intelligence

Semester: VI **Credits: 3**

Code: 18U6CSE12 **Hours: 4**

Objectives:

- **To understand problems and techniques in AI**
- **To Understand about different searching techniques in AI**
- **To know the expert system life cycle**

Unit -I

Introduction: AI Problems – AI techniques – Criteria for success. Problems, Problem Spaces, Search: State space search – Production Systems – Problem Characteristics – Issues in design of Search.

Unit - II

Heuristic Search techniques: Generate and Test – Hill Climbing – Best-Fist, Problem Reduction, Constraint Satisfaction, Means-end analysis.

Unit - III

Knowledge representation issues: Representations and mappings – Approaches to Knowledge representations – Issues in Knowledge representations – Frame Problem.

Unit - IV

Using Predicate Logic: Representing simple facts in logic – Representing Instance and Isa relationships – Computable functions and predicates – Resolution – Natural deduction.

Unit - V

Representing knowledge using rules: Procedural Vs Declarative knowledge – Logic programming – Forward Vs Backward reasoning – Matching – Control knowledge Brief explanation of Expert Systems-Definition- Characteristics-architecture- Knowledge Engineering- Expert System Life Cycle-Knowledge Acquisition Strategies- Expert System Tools.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Demonstrate knowledge of the building blocks of AI as presented in terms of intelligent agents.	2
CO2:	Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based techniques to solve them.	3
CO3:	Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing.	4
CO4:	Attain the capability to represent various real life problem domains using logic based techniques and use this to perform inference or planning**.**	7

Text Book:

1. Elaine rich and Kelvin Knight, "Artificial Intelligence ", Tata McGrawhill Publication, 2nd Edition, 1991. Unit I (Chapter I, II) , Unit II (Chapter III), Unit III (Chapter IV), Unit IV (Chapter V), Unit V (Chapter VI)

Reference Books :

1. Stuart Russell & Peter Norvig, "Artificial Intelligence a modern Approach ",Perason Education , 2nd Edition
2. George F Luger , "Artificial Intelligence ", Pearsons Education, 4th Edition , 2002.
3. V.S.JANAKI RAMAN, K.SARUKESI , P.GOPALAKRISHNAN, "Foundations of Artificial Intelligent and Expert Systems", MacMillan India limited.,

SBEC Lab- I: MS-Office

Semester: II **Credits: 2**
Code: 18U2CSSP01 **Hours: 3**

Ms Word

1. Text Manipulation – Change the Font Type and Style
   a. Prepare a Bio- Data
   b. Prepare a Letter
2. Usage of Numbering, Bullets, Headers and Footers
   a. Prepare a document in News paper Format
   b. Prepare a document in Brochure format
3. Tables and Manipulations – Creation, Insertion, Deletion
   a. Create a Mark sheet using Table

Ms Excel

4. Spread sheet using Formulas and functions
   a. SUM, AVERAGE, IF, COUNT, MIN, MAX,
5. Data sorting and Filtering
   a. Ascending , Descending
6. Creating Charts
   a. Pie Chart
   b. Bar chart

Ms Power Point

7. Inserting Clip and Pictures
   a. Create a slide show presentation for a seminar
8. Insertion of New Slides
   a. Prepare an Organization Chart
   b. Create a slide show presentation for an invitation
9. Usage of Design Templates
   a. Creation of a slideshow presentation to display mark sheet
   b. Creation of a slideshow presentation to display Percentage of students using Bar chart

Ms Access

10. Create an ACCESS database contains Students Information.

SBEC LAB – II: Accounting Package

Semester: IV **Credits: 2**

Code: 18U4CSSP02 **Hours: 3**

1.Company Creation, Alter the Company, Shut the Company 2.Group Creation, Ledger Creation

3. Vouchers – Payment , Sales , Purchases, Receipts

4. Bank ReconciliationS Statement

5. tock Group Creation – Stock Items.

6. Godown Creation

7. Contra Entry

8.Profit and Loss Balance Trial Balance Account and sheet.

9. Tax Detected at Sources(TDS).

10. Service Tax.

SBEC Lab III: DTP

Semester: V **Credits: 2**

Code: 18U5CSSP03 **Hours: 3**

Page maker:

1. Working with Text
    a. Multiple Text Block
    b. Formatting Text
    c. Making changes in the publication
2. Design a News Paper Publication
    a. Column Text
    b. Picture Insertion
    c. Advertisement
3. Managing and Printing
    a. Page Orientation
    b. Page number
    c. Table of Contents

Photoshop

4. Working with Images
    a. Image Effects (Blur, Black and White, contrast, brightness)
    b. Color Modes (CMYK, RGB etc)
5. Making Selections
    a. Moving a portion of Images
    b. Using Drawing Tools

c. Using Retouching Tools

6. Working with Lasso- and Polygonal Lasso Selection Tools,

a. Copy, Paste Into, Move Tool, Zoom Tool, Transform

b. working with Paint Bucket Tool, Color Picker, Brush Tool

SBEC LAB IV:HTML and Web Design

Semester: VI **Credits: 2**
Hours: 3

Code: 18U6CSSP04

1. Create a web page using text , marquee, character formatting tags.
2. Creating a web page using font ,heading tags.
3. Create web page using paragraph and BR tag.
4. Create web page using list tags of HTML
5. Create webpage to include image using HTML tag
6. Creating a web page using table tag.
7. Create web page using frames.
8. Create web page using forms.
9. Create a web page to display the courses offered using
   - <Img> tag
   - <A> tag
   - <Li> tag
10. Create a student registration form.

NMEC - I : Fundamentals of Information Technology

Semester: III **Credits: 2**

Code: 18U3CSN01 **Hours: 2**

Objectives:

- To learn basic of information technology
- To understand computer fundamental
- To learn the fundamental concepts in communication
- To understand topologies in network
- To understand the basics of Internet

Unit – I

Introduction to Information Technology: Information Technology – Understanding the Digital Domain – Representing Numbers and text in Binary- binary codes.

Unit – II

Fundamentals of Computers: Computer Hardware – Software – system software- application software- Translators- Computer languages-MLL-HLL-ALL.

Unit – III

Transmission of Information: Fundamentals of Communications – Fiber Optics – Wireless Communications –ISDN.

Unit – IV

Computer Networking: Goals – Topologies - Local Area Networks – Wide Area Networks – Communication Protocols.

Unit – V

Internet: Internet Architecture –- Types-Network Security-Internet applications- Internet address- domain name- E-mail.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Create well-designed programs.	5
CO2:	Demonstrate familiarity with elementary information systems concepts.	4
CO3:	Demonstrate familiarity with visual and event-driven programming concepts and techniques,	1,2
CO4:	Demonstrate familiarity with the basic concepts of object-oriented	1

Text Book:

1. Pelin Aksoy, Laura DeNardis ,"Introduction to Information Technology", Cengage Learning India Private Limited, First Indian Reprint 2008.

NMEC – I : Office Automation

Semester: III **Credits: 2**
Code: 18U3CSN02 **Hours: 2**

Objectives:

- To know about fundamentals of computers
- To learn about peripheral devices
- To learn MS Word, Excel and Powerpoint

Unit – I

Introduction to Computers – Five Generations of Modern Computers – Classification of Digital Computer Systems – Anatomy of a Digital Computer – Memory Units – Auxiliary Storage Devices.

Unit – II

Input Devices - Output Devices – Introduction to Computer Software – Operating Systems.

Unit - III

W**ord:** Introduction –Getting Started MS Word 2007 – Microsoft office Button-Quick Access Tool Bar –Working with Longer Documents- Page formatting- Macros.

Unit - IV

Excel: Introduction-Getting started with MS Excel – Spreadsheets-Microsoft office Button-Ribbon-Quick Access Toolbars-Creating a Workbook-Data-Modifying a Worksheet- Calculations-Relative, Absolute and Mixed References-Formatting Worksheet- Developing a Worksheet- Page properties and Printing.

Unit-V

PowerPoint: Introduction-Microsoft Power Point 2007- Getting started with Microsoft power point 2007 – Microsoft Office Button- Ribbon-Quick Access Tool bar –Customize- Creating a presentation- Slide Effects –Transition- Animation- Printing.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Describe Generations of Modern Computers, Classification of Digital Computer Systems, Auxiliary Storage Devices.	1
CO2:	Learnt about MS Office Products and how to identify the common Screen Elements and Finding Common Ways to Work.	4
CO3:	Describes Formatting a Word Document and Working with Longer Document.	5
CO4:	Learnt how to create Charts in Excel.	8
CO5:	Understand how to create and View Presentations and Presentation with Special Effects	10

Text books:

1. Alexis Leon, Mathews Leon , “Introduction to Computers” , Vikas Publishing House Pvt. Ltd., (UNIT – I,II)
2. Sanjay Saxena, –“MS Office 2007 IN A NUTSHELL “,Vikas Publishing House Pvt.Ltd.. (Units- III, IV, V)

NMEC II : Photoshop

Semester: IV **Credits: 2**

Code: 18U4CSN03 **Hours: 2**

Objectives:

- To know about fundamentals concepts in Photoshop
- Able to edit images
- Explore file formats

Unit-I:

Adobe Photoshop CS4: Getting Familiar with Photoshop CS4: Introducing and Launching Photoshop CS4 - Exploring the New Interface-Working with commonly used Photoshop Tools-Getting Familiar with Palettes.

Unit-II:

Opening an Existing File or Photoshop Document-Creating a new document-Saving Files-Reverting Files-Closing Files-Getting Familiar with Different Workspaces-Selecting a Workspace-Saving and deleting workspace and Quitting the Application.

Unit-III:

Adobe Photoshop CS4: Working with image and Selections: Comparing Bitmap and Vector Images-Understanding Image Resolution-Editing Images-Making Color Adjustments.

Unit-IV:

Exploring File Formats in Photoshop-Working with Selections Tools-Making a Selection Based on Color Range-Modifying a Selection .Drawing, Painting and Retouching Tools-Using Retouching Tools.

Unit-V:

Mastering Layers in Photoshop-Applying Blend Modes-Using Type

Masking-Using Shape Masking.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Familiar with Photoshop	1
CO2:	Explore different work spaces in Photoshop	4
CO3:	Able to perform image editing	5
CO4:	Explore File Formats in Photoshop	8
CO5:	Able to perform masking	9

Text Book:

1. Vikas Gupta,"Comdex 9- in-1 DTP Course Kit",Dreamtech Press,New Delhi,2010.

NMEC – II : Web Designing

Semester: IV **Credits: 2**

Code: 18U4CSN04 **Hours: 2**

Objectives:

- To understand the basics of Internet
- To learn Tags in HTML
- To understand lists in HTML
- To understand tables and frames in HTML

Unit-I:

Introduction: Web Basics: What is Internet – Web Browsers – What is Web page – **HTML Basics:** Understanding tags.

Unit -II:

Tags for Document structure (HTML, Head, and Body Tag), **Block level text elements:** Headings paragraph (<p> tag) – **Font style elements:** (bold, italic, font, small, strong, strike, big tags).

Unit- III:

Lists: Types of lists: Ordered, Unordered – Nesting Lists – **Other tags:** Marquee, HR, BR – Using Images – Creating Hyperlinks.

Unit -IV:

Tables: Creating basic Table, Table elements, Caption – Table and cell alignment – Rowspan, Colspan – Cell padding.

Unit -V:

Frames: Frameset – Targeted Links – No frame – **Forms:** Input, Text area, Select, Option.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand the basic concepts of Internet.	1
CO2:	Learnt tags in HTML	4
CO3:	Understand how to using lists and backgrounds	8
CO4:	Understand hyperlink, creating a table formation and forms	9
CO5:	Understand forms and frames in HTML	10

Text book:

1. Dr.S.Aruna,"Hypertext Markup Language",Margham Publications-2017.

Reference book:

1. C.Xavier , " World Wide Web Design with HTML", TMH, 2007
2. Faithe Wempen, "Microsoft Step by Step – HTML and XHTML", Prentice Hall of India Private Limited, New Delhi, 2006.

Allied Course –

I Programming

in C

Semester-III **Hours/Week: 5**

Code: 18U3CSA01 **Credit: 3**

Objectives:

- **To know the basic concepts in C**
- **To understand operators in C**
- **To know decision making concepts**
- **To understand pointers**

Unit – I:

Overview of C: History of C – Importance of C – Basic structure of C programs. Constants, variables and data types. Character set – C Tokens – Keywords and identifiers – Constants – Variables – Declaration of storage classes – Assigning values to variables- Defining symbolic constants. Operators and expression – Evaluation of expressions – Precedence of arithmetic operators – Type conversions in expressions – Operator precedence and associatively – Mathematical functions. Managing input and output operations: Reading and writing a character Formatted input and output.

Unit – II:

Decision making and branching: Simple IF, IF-ELSE, Nesting of IF-ELSE, ELSE-IF ladder, Switch statements – GOTO statements. Decision making and looping: WHILE statement – DO statement – FOR statement – Jumps in loops. Arrays: Definition & Declaration – One dimensional – Two dimensional – Multi

dimensional arrays - Dynamic arrays.

Unit – III:

Character arrays and strings: Introduction – Declaring and initializing string variables – Reading strings from terminal – Writing strings to screen – String handling functions – Table of strings. User – Defined functions: Introduction – Need for user – Defined function – A Multi- function program – Elements of user – Defined function – Definition of functions – Return values and their types – Function calls – Function declaration – All category of functions – Nesting of functions – Recursion – Passing arrays to functions – Passing strings to function.

Unit – IV:

Structures and Unions: Introduction – Defining a structure – Declaring structure variables – Accessing structure members – Structure initialization – Copying and comparing structure variables – Arrays of structures – Arrays within structures – Structures within structures – Structures and functions – Unions – Size of structures – Bit fields.

Unit – V

Pointers: Introduction – Understanding pointers – Accessing the address of a variable – Initializing of pointer variables. Chain of pointers – Pointer expressions –Pointers and arrays – Pointers and character strings – Arrays of pointers – Pointers as function arguments – Functions returning pointers – Pointers to functions – Pointer and structures.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Write the basic C programs with variables and arithmetic operators, Understand the fundamentals of C program,	8
CO2:	To develop conditional and iterative statements to write C programs,	4

CO3:	To choose the loops and decision making statements to solve the problem	3,8
CO4:	Be able to write program to perform arrays on any dimensions,	5
CO5:	Understand different string handling functions to carryout string manipulations,	9
CO6:	To understand how to write and use multiple functions to return values**.**	9

Text Book

Programming in ANSI C, E. Balgurusamy Tata McGraw Hall, New Delhi, 4th Edition.

Allied Course -I

Allied Practical I -Programming in C

Semester-III **Hours/Week: 3**

Code: 18U3CSAP01 **Credit: 2**

C Programming List:

1) Write a program to find the Sum of N Natural Numbers
2) Write a program to calculate simple and compound interest
3) Write a program to perform Matrix manipulations
4) Write a program to sort N numbers in ascending and descending order
5) Write a program to print the Fibonacci series.
6) Write a program to find the factorial of a number using recursion.
7) Write a program to illustrate string handling functions
8) Write a program to find the occurrences of each character in the string.
9) Write a program using Structures with array elements

Allied Course -I

Programming in Python

Semester-III **Hours/Week: 5**

Code: 18U3CSA02 **Credit: 3**

Unit -I

Introduction to Python: Introduction – Python Overview – Getting Started with Python Comments – Python Identifiers – Reserved Keyword – Variables – Standard Data Types

Unit- II

Operators – Statement and Expression – String Operation--Boolean Expression –Control Statement – Iteration – While Statement – Input from Keyboard.

Unit -III

Functions: Introduction – Built-in Functions – Composition of Functions – User Defined Functions – Parameters and Arguments - Function Calls – The return Statement – Python Recursive Functions – The Anonymous Functions – Writing Python Scripts.

Unit -IV

Strings and List: Strings – List. **Tuples and Dictionaries:** Tuples – Dictionaries. **Files and Exceptions:** Text Files – Directories – Exceptions – Exceptions with Arguments – User- defined Exceptions.

Unit-V

Classes and Objects: Overview of Object Oriented Programming – Class definition – Creating Objects – Objects as Arguments – Objects as Return values – Built-in Class Attributes – Inheritance – Method Overriding – Data Encapsulation – Data Hiding.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-1	To know the basic concepts of python	1,2
CO-2	Understand different operators, expression and functions to carryout string manipulations,	4
CO-3	To write program in python	6
CO-4	Learnt how to use class inheritance in Python for reusability	8

Text Books

1. Kailash Vadera, Bhavyesh Gandhi, " Open Source Technology", University Science Press, 2013.

2. E. Balagurusamy, "Introduction to Computing and Problem Solving Using Python", McGraw Hill Education, 2018.

Reference Books

1. Mike McGrath, "Python in Easy Steps", McGraw Hill Education, 2017.

Allied Course -I

Allied Practical I- Programming in Python

Semester-III **Hours/Week: 3**

Code: 18U3CSAP02 **Credit: 2**

1. Write a program to compute simple interest.
2. Write a program to compute area of square and triangle.
3. Write a python program to check whether the year is leap year or not.
4. Write a simple program to display sum of all numbers from 1 to 10.
5. Write a python program to enter a string and print the length of the string using built-in function.
6. Write a python program to replace one string with the other string.
7. Write a python program to find the mean and median from a given list.
8. Write a python program to perform insertion sort on a given lists of strings.
9. Write a python program to perform bubble sort on a given lists of strings.
10. Write a python program to find Person is senior citizen or not, input age.

Allied Course - I Visual Programming

Semester-III **Hours/Week: 5**

Code: 18U3CSA03 **Credit: 3**

Objectives:

- **To familiar with the Visual Basic software**
- **To Understand about the Graphical User Interface Design**
- **To know the procedure of Database Connection through VB**

Unit – I:

What is Visual Basic – Features of VB – Developing an Application – Creating an Application: Objectives – The Tool Box – Project Explorer- The Properties Window – The Form Window- Understanding Projects – Forms and Controls: Objectives – The Form- The working with a Control – Opening the Code Window- Variables in VB – Data Types in VB

Unit –II:

Writing Code in VB – The Code Window – The Anatomy of Procedure – Editor Features – The For …Next Statement - The Decision Maker … If – Loop – DO.. While Loop – Select Case … End Select – Working with Files – VB File System Controls – Types of Files – Working with Files.

Unit – III:

Menus: Building the User Interface – All about Menus – MDI Applications - Why MDI Forms – Features of an MDI Form – Loading MDI Forms and Child Forms – The Active Form property – Debugging methods- Common Dialog

Control - File open Dialog Box – Save Dialog Box – Changing the color - Introduction to Databases – What is Database - Working with Data Control – The Data Control – The Bound Controls – Caution – Coding

Unit – IV:

DAO : The Jet Database Engine – Functions of the Jet Database Engine – SQL – The DAO Object Model - Additional Controls Available in VB 6.0 – SSTab Control – Activex Data Objects - Why ADO – Establishing a Reference.

Unit – V:

Crystal And Data Reports : Crystal Reports - Data Report – Distributing your Application - Working with the packaging and Deployment Wizard – Activex- What is Activex - Why Activex and Web Pages – Activex Documents- The Application Form Document - Sample Application in VB like Inventory Control.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Create well-designed programs, demonstrate familiarity with elementary information systems concepts.	4
CO2:	Demonstrate familiarity with visual and event-driven programming concepts and techniques.	5
CO3:	Demonstrate familiarity with the basic concepts of visual programming.	8
CO4:	Demonstrate familiarity with the tools and techniques for constructing attractive and useful user interfaces.	7
CO5:	Develop complete programs that solve intermediate problems dealing with various data types, elementary data structures, and objects.	9

Text book:

Programming with Visual Basic 6.0 – Mohammed Azam – Vikas Publishing House (P)Ltd

Allied Practical I- Visual Programming VB Lab – List of Practical

Semester-III **Hours/Week: 3**

Code: 18U3CSAP03 **Credit: 2**

1. Construction of an Arithmetic Calculator (Simple)
2. Working with List Box and Combo Box Control
3. Working with MDI Form
4. Working with Rich Text Box Control
5. Create an Animation Using picture box control
6. Working with Save Dialog Box
7. Preparation of Students Mark Sheet.
8. Personal Information System (Using Tables)
9. Library Information System (Using Tables).

Allied Course -IV

Programming in

C++

Semester-IV **Hours/Week: 5**

Code: 18U4CSA04 **Credit: 3**

Unit – I:

Object-Oriented Programming: Principles – Benefits of OOP – Application of OOP – Tokens, Expression and Control Structures: Tokens – Keywords – Identifiers and Constants – Data types
– Constants – Variables – Operators – Manipulators – Expressions – Control Structure.

Unit – II:

Functions – Prototyping – Call by Reference – Return by Reference – Inline Functions – Default Arguments – const Arguments – Function Overloading – Friend and Virtual Functions, Classes and Objects – Class – Member Functions – Arrays with in a Class – Memory Allocation for Objects – Static data members – Static member functions – Arrays of Objects – Objects as Function Arguments – Friendly Functions – Returning Objects – const Member Functions – Pointers to Members, Constructors and Destructors

Unit – III:

Operator Overloading and Type Conversions, Inheritance: Extending Classes – Derived Classes
– Single Inheritance – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes, Pointers.

Unit – IV

Virtual Functions and Polymorphism: Pointers – Pointers to Objects –this

Pointer – Pointers to Derived Classes – Virtual Functions – Pure Virtual Functions Managing I/O Operations: C++ Streams – C++ Stream Classes – Unformatted I/O and Formatted I/O Operations – Managing Output with Manipulators.

Unit – V

Working with Files: Classes for File Stream Operations – Opening and Closing a File – Detecting end-of-file – File Pointers and Their Manipulators – Sequential I/O Operations – Updating a File – Error Handling during File Operations – Command Line Arguments. – Exception Handling: Basics - Exception Handling Mechanism – Throwing Mechanism – Catching Mechanism – Rethrowing an Exception – Specifying Exceptions.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To understand the basic elements of a simple C++ program.	1
CO2:	Able to write a program used by constructors and destructors.	9
CO3:	To understand the concept of extending classes through inheritance.	4
CO4:	To implement the concept of pointers, polymorphism and virtual functions in a C++ program.	5
CO5:	Exercise file concept using formatted and unformatted I/O operations.	9
CO6:	To understand the concept of class template and function template.	1
CO7:	To develop a C++ program using exception handling mechanism	8

Text Book:

"Object Oriented Programming with C++", 3rd Edition, E.Balagurusamy, Tate McGraw Hill Pub. Ltd., New Delhi

Allied Course -IV

Programming in

C++

Semester-IV **Hours/Week: 3**

Code: 18U4CSAP04 **Credit: 2**

List of Practical:

1) Write a Program using classes and objects
2) Write a program using i) Inline function ii) Friend function
3) Write a program arranging the numbers ascending and descending order
4) Write a program using different types of constructors
5) Write a program using destructors
6) Write a program using function overloading
7) Write a program using operator overloading
8) Write a program using different type of inheritance
9) Write a program to prepare student mark statement using files.
10) Write a program using exception handling.

Allied Course -IV

Computer Applications in Biology

Semester-IV **Hours/Week: 5**

Code: 18U4CSA05 **Credit: 3**

Unit -I

Introduction of computers: Introduction- Types of Computers-Characteristics of Computers. Generations of Computers-Classification of Computers-Programming Languages: Machine Language-Assembly Language - High-level languages. Input Devices – keyboard- Mouse-Types of mice – Connections-Mouse pad-Trackball-Joystick. Output devices - Dot Matrix Printer- Inkjet -Laser Printer -LCD & LED Printers-Line Printer. Auxiliary Storage Devices: Hard Disk – CD – DVD - Primary memory.

Unit- II

Overview of C: History of C – Importance of C-Basic structure of C programs. Constants, Variables and Data types: Character set - Keywords and identifiers-Constants- Variables-Declaration of storage classes. Operators and expression-Evaluation of expression - Type conversions in expressions-Operator precedence and associativity-Mathematical functions. Managing input and output operations: Reading and Writing a character-Formatted input and output.

Unit-III

Decision making and branching: Simple IF, IF-ELSE, Nesting of IF-ELSE, ELSE-IF ladder, Switch statements-GOTO statements. Decision making and looping: WHILE statement- DO statement-FOR statement – jumps in loop. Arrays: Definition & Declaration- One dimensional – Two dimensional-Multidimensional arrays-Dynamic arrays.

Unit-IV

Character arrays and strings: Introduction – Declaring and initializing string variables – User Defined functions: Definition of functions-Return values and their types-Function calls- Function declaration-All category of functions-Nesting of functions Structures and Unions: Introduction - Accessing structure members - Structure initialization - Arrays of structures - Arrays within structures – Unions.

Unit-V

Scope of bio informatics- Internet basic-biological data analysis and applications- sequences of data bases-applications of bio informatics.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand the basic concept of computer	8
CO2:	Write the basic C programs with variables and arithmetic operators, Understand the fundamentals of C program,	4
CO3:	To choose the loops and decision making statements to solve the problem	3,8
CO4:	Be able to write program to perform arrays on any dimensions	5
CO5:	Understand different string handling functions to carryout string manipulations.	9

Text Books:

1. Alexis Leon & Mathews Leon, “Fundamentals of Computers Science and Communication Engineering”, Vikas Publishing House Pvt.Ltd, New Delhi. (UNIT- I)
2. E.Balagurusamy, “Programming in ANSI C”, Tata McGraw Hall, 4th edition, New Delhi. (Unit-II, III, IV).
3. V.Kothekar, “Introduction to Bioinformatics”, Dhruv publications, Delhi-2004. (UNIT – V)

Reference Book:

1. Byron S.Gottfried, Jitender Kumar Chhabra, “Programming with C”, Third edition, 2010.

Allied Practical-IV

Computer Applications in Biology

Semester-IV **Hours/Week: 3**

Code:18U4CSAP05 **Credit: 2**

1. Write a C program to prepare the student mark list.
2. Write a C program to find the Mean, Standard deviation and Mean deviation for the given values.
3. Write a C program to print the multiplication table from 1 to 12.
4. Write a C program to calculate the correlation coefficients.
5. Write a C program to find the Regression coefficients and Regression lines.
6. Write a C program to calculate the Student's T test
7. Write a C program to perform chi-square test.
8. Write a C program to count the positive, negative & zero numbers from the given set of values.
9. Write a C program to find the occurrences of each character in the string & to concatenate two strings without using string library function.
10. Write a C program to find the factorial of a given number using functions.

CORE I:Internet and Computer Applications

Semester:IV **Credit:3**

Code: 18U4CSA06 **Hours:5**

Unit I

Introduction to Computers: Introduction – Types of Computers- Characteristics of Computers – Generation of Computers – Classification of digital Computers. Programming Languages: Machine Languages – Assembly level languages and high level languages.

Unit II

MS Word: Introduction to word – Menus – Formatting text and documents – Working with headers and footers, foot notes – Working with Tab - Creating Tables – Mail Merge.

Unit III

MS Excel: Introduction to Excel – Renaming worksheets – Formatting work sheets – Excel Chart Features – Working with Functions – Statistical – Math - Financial functions.

Unit IV

Power Point basics – Editing text – Deleting slides – Working in outline view – Using Design Templates – Adding Graphics – Adding organization Charts - Running Slide Show - Adding Special Effects.

Unit V

Introduction to Internet: Internet Concepts – E-mail - WWW Concepts – Web Browser – Search Engine – Internet chat – Internet Relay Chat (IRC), Chatting on the web.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Describe Generations of Modern Computers, Classification of Digital Computer Systems, Auxiliary Storage Devices.	8
CO2:	Learnt about MS Office Products and how to identify the common Screen Elements and Finding Common Ways to Work. Describes Formatting a Word Document and Working with Longer Document.	4
CO3:	Learnt how to create Charts in Excel. Understand how to create and View Presentations and Presentation with Special Effects.	3,8

Text Books:

1. MS Office 2000 For Every One - Vikas Publishing House – Pvt Ltd., Sanjay Saxena.
2. Alexis Leon, Mathews Leon, “Fundamentals of Computer Science and Communication Engineering”

Practical VI - Internet and Computer Applications

Semester:IV **Credit:2**

Code: 18U4CSAP06 **Hours:3**

List of Practical

1. Creating Table in MSWORD
2. Formatting documents
3. Mail – Merge
4. Entering Data, changing font , changing row heights and column width, formatting the data, sorting the data.
5. Functions in Excel (ABS, SQRT, LEN, SUM, ROUND, AVG, COUNT)
6. Inserting Charts , Inserting Pictures
7. Creating Simple presentations – saving, opening an existing presentation- creating a presentation using Auto Content Wizard and Template
8. Slide View – Outline View, Slide View, Slide show View and Slide sorter View.

ALLIED PAPERS

ALLIED- I : NUMERICAL AND STATISTICAL METHODS

Semester: I **Credits: 4**

Code: 18U1MAA03 **Hours: 5**

NOTE: 80% of problem and 20% of theory (Theorems and proof are not expected)

UNIT I :

Algebraic and Transcendental Equations: Bisection Method – Iteration Method – The Method of False Position – Newton- Raphson – Method.

UNIT II :

Interpolation with equal intervals – Newton forward and backward formula - Central Difference Interpolation formula – Gauss forward and backward formula

UNIT III :

Statistics: Definition-Collection-Primary and Secondary Data-Measures of Central tendency-Mean –Median- Mode-Geometric mean-Harmonic Mean.

UNIT IV :

Correlation Coefficient : Scatter diagram method Karl pearson - Rank correlation coefficient– Linear regression – Method of least squares

UNIT V :

Distributions: Bionomial Distribution- -Poisson Distribution- Normal Distribution- Definition-Applications and properties. (Simple Problems only , No Derivations)

TEXT BOOKS :

1. S.S. Sastry, Introductory Methods of Numerical Analysis, Prentice Hall of India, Pvt. Ltd., 1995.(For Units I, II).

2.R.S.N.Pillai and Bagavathi- Statistics Theory and Practice-S.Chand and Company LTD(2016)

BOOKS FOR REFERENCE:

1. S.Kalavathy, Numerical Methods, Vijay Nicole, Chennai, 2004.

2. Dr.Kandasamy, Numerical Methods, Sultan Chand, New Delhi

ALLIED II: PRINCIPLES OF DIGITAL ELECTRONICS

Semester: II **Credits: 3**

Code: 18U2ELA01 **Hours: 4**

UNIT – I

Number systems and Binary codes:

Introduction : Digital Electronics –System Binary– Octal System – Hexadecimal Decimal – Binary arithmetic – BCD – Gray Code – Excess – 3 Code – ASCII Code – Conversion-1's and 2's Complement .

UNIT – II

Boolean algebra and logic gate:

Logic Gates – Universal gates – Basic Laws of Boolean Algebra – De Morgan's Theorems - Karnaugh map – Sum of product (SOP) – Product of Sum (POS).

UNIT – III

Combinational Logic : Half Adder – Full Adder – BCD Adder – Half Subtractor – Full Subtractor – Encoder – Decoder – Multiplexer – Demultiplexer.

UNIT – IV

Sequential Circuits: Flip Flops – RS Flip Flops – Data Latch or D Flip Flop – JK Flip Flop – T Flip Flop – Master Slave J K Flip Flop – Register – Shift registers.

UNIT – V

Counters: Asynchronous or Ripple Counter – Synchronous Counter –

Ring Counter – Programmable Counter – Memory.

TEXT BOOK:

1. V.K.Puri, “Digital Electronics Circuit Systems”, TMH.

REFERENCE BOOKS:

1. Leach & Malvino, “Digital Principle and Application”, TMH.

ALLIED PRACTICAL – I: DIGITAL ELECTRONICS LAB

Semester: II **Credits: 2**

Code: 18U2ELAP01 **Hours: 3**

1. Verification of logic gates using IC'S
2. NAND / NOR as a universal gate
3. Verification of De Morgan's Theorem
4. Half and full adder
5. Half and Full Subtractor
6. Multiplexer and Demultiplexer
7. Encoder & Decoder
8. Study of flip flops - RS and D flip flop
9. Study of flip flops - JK and Master Slave and T flip flop
10. Shift registers

ALLIED III: PRINCIPLES OF ACCOUNTANCY

Semester: III **Credits: 4**

Code: 18U3CMA01 **Hours: 4**

Objectives:

- To enable the students to acquire basic knowledge of accounting principles, concepts and conventions.
- To make the students to acquire the skill to prepare the trial balance and final accounts.

UNIT - I

Specific Objective: To know about basic accounting concepts and methods of accounts.

Basic Concepts: Fundamentals of Book Keeping-Meaning-Definition-Book-keeping Vs. Accounting. Objectives- Advantages and limitations of accounting-Methods of accounting- Double entry system- Meaning-Advantages- Types of accounts- Accounting Rules-Accounting concepts and conventions.

Course outcome: To understand the fundamentals of accounting concepts and double entry system.

UNIT - II

Specific Objective: How to prepare journal entries, ledger and trial balance.

Journal- Ledger- Balance of ledger -Trial balance.

Course outcome: To make the student to prepare the journal entries, ledger and trial balance.

UNIT-III

Specific Objective: How to prepare trading account, profit &loss account and balance sheet for sole trading concern. Final accounts of a sole trading concern-Trading, Profit & Loss a/c and Balance sheet with adjustments, Difference

between Trading a/c- P&L a/c and Balance sheet.

Course outcome: to studied final accounts for sole trading concern.

UNIT - IV

Specific Objective: To enable the students to identification of errors, types of errors and how will rectification of errors.

Rectification of errors - Classification of errors - rectification in different stages of accounting cycle - basic principle of rectification of errors - Suspense account.

Course outcome: at the end of unit students can rectify the errors.

UNIT – V

Specific Objective: How to enter income and expenditure in receipts and payments account. Final accounts of Non- trading concerns- meaning and treatment- Difference between Receipts and payments account& Income and expenditure account.(simple problems)- Receipts and payments account- Income and expenditure account and Balance Sheet.

Course outcome: students shall understand receipts and payments accounts for non trading concern.

Note: Distribution of marks - Problems 75% and Theory 25%.

TEXT BOOKS:

1. Financial Accounting - Reddy and Murthy - Margham Publications, Chennai -17. (2012)
2. Financial accounting - R.L Gupta and V.K Gupta, Sultan chand& Sons, New Delhi. (2014)

REFERENCE BOOKS:

1. Financial accounting - S.P Jain & K.L Narang, Kalyani publishers, Ludhiana. (2018)
2. Financial Accounting - Dr. S Ganesan and Kalavathi ,Tirumalai Publications, Nagercoil.
3. Advanced Accounting I - Dr. Chandra Bose PHI Learning (P) Ltd., Delhi. (2010)

Allied II– DISCRETE MATHEMATICS

Second / Fourth Semester

(For B.Sc (CS)., BCA., B.Sc(IT) students admitted from the year

2018 – 2019 onwards) Course code: 18U2MAA04/18U4MAA04 Max

Marks: 75

No. of Hours: 5 **Credits: 5**

Objectives:

An argument using logical notation and determine if the argument is or is not valid.

Unit-I

Course objectives:

Express a logic sentence in terms of predicates, quantifiers, and logical connectives

Mathematical Logic : Logical Statements - Propositional Calculus - The Negation - Conjunction - Disjunction - Tautologies - Logical Equivalence- The algebra of propositions- Problems.. Relation and Functions: Relation - Equivalence relation - Functions - Problems.

Course outcomes:

Write an argument using logical notation and determine if the argument is or is not valid.

UNIT - II

Course objectives:

Apply algorithms to problems including searching algorithms, base conversion algorithms, and the Euclidean algorithm.

Ordered sets and Lattices : Coset-Product Set and Order- Hasse Diagram of Partially Ordered Sets - Lattices-Lattices as Partially Ordered Sets - Lattices as Algebraic System -

Sub Lattices - Product of two Lattices - Complete, Complemented , Distributive, and Modular Lattices – Problems only.

Course outcomes:

Understand the basic principles of sets and operations in sets.

UNIT - III

Course objectives:

write proofs using symbolic logic and Boolean Algebra

Boolean Algebra and Switching Circuits : Introduction – Boolean Functions - Normal Form - Fundamental form of Boolean Functions - Applications to Switching Networks - Problems.

Course outcomes:

Demonstrate the ability to write and evaluate a proof or outline the basic structure of and give examples of each proof technique described.

UNIT - IV

Course objectives:

Perform basic matrix operations including sums, products, and transpose and perform 0- 1 matrix operations.

Matrices and Linear Equations – Rank - Cramer's rule-problems. Characteristic Roots and Vectors of a Matrix : Characteristic equation and roots- Cayley Hamilton Theorem – Characteristic - Vectors of a Matrix -Problems.

Course outcomes: write and evaluate a proof or outline the basic rules

UNIT - V

Course objectives:

Combinatorics : Introduction - Sum, Product rules Factorial - Permutations - Circular Permutations - Combinatorics - Value of nCr - Pigeonhole Principle - Problems.

Course outcomes:

Demonstrate an understanding of relations and functions and be able to determine their properties.

NOTE: 80% of problem and 20% of theory (Theorems and proof are not expected)

TEXT BOOK

1. B.S.Vatsa . Suchi Vastsa, Discrete Mathematics, New Age International Publishers, Fourth Revised edition

REFERENCE BOOK

1. Prof.V.Sundaresan, K.S. Ganapathy Subramaniyam, K.Ganesan., Discrete Mathematics, Tata Me Graw Hill, New Delhi., 2000.
2. L.Lovarz, J.Pelikan, K.Vexztergombi.., Discrete Mathematics, Springer International Edition,2002

Selvamm Arts and Science College (Autonomous)

(Nationally Reaccredited(2nd cycle) at 'A' Grade by NAAC) UGC recognized 2(f) and 12(B) Institution

Affiliated to Periyar University ,Salem.

Namakkal – 637 003.

Department of Computer Science

Bachelor of Computer Applications

Regulations and Syllabus-CBCS Pattern (Autonomous) (2018-19 and thereafter)

Vision

To attract young minds to the potentially rich and employable field of computer applications. To develop skills in software development so as to enable the BCA graduates to take up self employment in Indian and global software market.

Mission

To produce best quality computer science and IT professionals and researchers by providing state-of-the-art training, hands on experience.

Programme Outcomes (UG)

PO 1: Communicate Effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.

PO 2: **Environment Concern** - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor.

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society.

Structure of B.C.A (Bachelor of Computer Applications)

Programme Under CBCS Pattern For Autonomous

(From 2018- 19 and thereafter)

Curriculum and Scheme of Examinations

Sem.	Part	Course Code	Course	Credits	Hours/ Week	Marks		
						C.I.A	E.A	TOTAL
I	I	18U1FTA01	Foundation Tamil – I	4	5	25	75	100
	II	18U1FEN01	Foundation English – I	4	5	25	75	100
	III	18U1CA01	Problem Solving Techniques	3	5	25	75	100
		18U1CA02	Programming in C	3	5	25	75	100
		18U1MAA03	Allied I : Numerical and Statistical Methods	4	5	25	75	100
		18U1CAP01	Lab I : Programming in C	2	3	40	60	100
	IV-B	18U1VE01	Value Education : Yoga and Practice	1	2	25	75	100
	Total Credits for I Semester :21			**21**	**30**	**190**	**510**	**700**
II	I	18U2FTA02	Foundation Tamil – II	4	5	25	75	100
	II	18U2FEN02	Foundation English – II	4	5	25	75	100
	III	18U2CA03	Object Oriented Programming with C++	3	4	25	75	100
		18U2ELA01	Allied II : Principles of Digital Electronics	3	4	25	75	100
		18U2CAP02	Lab II : Programming with C++	2	4	40	60	100
		18U2ELAP01	Allied Lab I: Digital Electronics	2	3	40	60	100
	IV-A	18U2CASP01	SBEC Lab I: MS Office	2	3	40	60	100
	IV-B	18U2VE02	Value Education : Values for Life	1	1	25	75	100

		18U2ES01	Environmental Studies	1	1	25	75	100
	Total Credits for II Semester : 22			**22**	**30**	**270**	**630**	**900**
III	I	18U3FTA03	Foundation Tamil – III	4	5	25	75	100
	II	18U3FEN03	Foundation English – III	4	5	25	75	100
	III	18U3CA04	Data Structures and Algorithms	3	5	25	75	100
		18U3CA05	System Analysis and Design	3	5	25	75	100
		18U3_	Allied III : Principles of Accountancy	4	4	25	75	100
		18U3CAP03	Lab III : Data Structures using C	2	4	40	60	100
	IV-A		NMEC – I	2	2	25	75	100
	Total Credits for III Semester : 22			**22**	**30**	**190**	**510**	**700**
IV	I	18U4FTA04	Foundation Tamil – IV	4	4	25	75	100
	II	18U4FEN04	Foundation English – IV	4	4	25	75	100
	III	18U4CA06	Relational Database Management System	3	5	25	75	100
		18U4CMA01	Allied IV : Discrete Mathematics	4	4	25	75	100
		18U4CAP04	Lab IV : RDBMS	2	4	40	60	100
		18U4CA07	Operating Systems and Linux	4	4	25	75	100
	IV-A	18U4CASP02	SBEC Lab II: Accounting Package	2	3	40	60	100
			NMEC – II	2	2	25	75	100
	Total Credits for IV Semester : 25			**25**	**30**	**230**	**570**	**800**
V	III	18U5CA08	Event Driven Programming	4	4	25	75	100
		18U5CA09	Java Programming	4	4	25	75	100
		18U5CA10	Mobile Application Development	5	5	25	75	100
		18U5CAE_	Elective – I	3	4	25	75	100
		18U5CAE_	Elective – II	3	4	25	75	100

		18U5CAP05	Lab V : Event Driven Programming	2	3	40	60	100
		18U5CAP06	Lab VI : Java Programming	2	3	40	60	100
	IV-A	18U5CASP03	SBEC Lab III : DTP	2	3	40	60	100
	Total Credits for V Semester : 25			**25**	**30**	**245**	**555**	**800**
VI	III	18U6CA11	Open Source Technologies	4	4	25	75	100
		18U6CA12	Computer Networks	5	5	25	75	100
		18U6CAE_	Elective – III	3	4	25	75	100
		18U6CAE_	Elective – IV	3	4	25	75	100
		18U6CAP07	Lab VII : PHP and MySQL	2	3	40	60	100
		18U6CAP08	Lab VIII : S/W Development Lab	3	4	40	60	100
	IV-A	18U6CASP04	SBEC Lab IV: HTML and Web Design	2	4	40	60	100
	IV-A	18U6STE01	Skills Through English	1	2	25	75	100
	Total Credits for VI Semester : 23			**23**	**30**	**245**	**555**	**800**
	V	18U6EX01	Extension Activities	**2**	**-**	**-**	**-**	**-**
	Grand Total			**140**	**180**	**1370**	**3330**	**4700**

Elective – I

Sem.	Part	Course Code	Course
V	III	18U5CAE01	Software Engineering
		18U5CAE02	Software Project Management
		18U5CAE03	Software Testing

Elective – II

Sem.	Part	Course Code	Course
V	III	18U5CAE04	Artificial Intelligence
		18U5CAE05	Management Information System
		18U5CAE06	Enterprise Resource Planning

Elective – III

Sem.	Part	Course Code	Course
VI	III	18U6CAE07	Cyber Crime and Security
		18U6CAE08	Data Warehousing and Data Mining
		18U6CAE09	Knowledge Management

Elective – IV

Sem.	Part	Course Code	Course
VI	III	18U6CAE10	Web Technology
		18U6CAE11	Client/Server Technology
		18U6CAE12	E-Commerce

SBEC – Skill Based Elective Courses

Part	Sem.	Course Code	Course	Credits	Hours	Marks		
						CIA	EA	Total
IV- A	II	18U2CASP01	SBEC Lab-I : MS Office	2	3	40	60	100
	IV	18U4CASP02	SBEC Lab-II : Accounting Package	2	3	40	60	100
	V	18U5CASP03	SBEC Lab-III: DTP	2	3	40	60	100
	VI	18U6CASP04	SBEC Lab-IV: HTML and Web Design	2	4	40	60	100

Non Major Elective Courses - (NMEC)

- Non Major Elective Subjects offered by the Department of Computer Science /Applications
- The department can offer any one of the subjects to the other major subject

Part	Sem.	Course Code	Course	Credits	Hours	Marks		
						CIA	EA	Total
IV-A	III	18U3CAN01	NMEC I:Fundamentals Of Information Technology	2	2	25	75	100
		18U3CAN02	NMEC I: Office Automation	2	2	25	75	100
	IV	18U4CAN03	NMEC II: Photoshop	2	2	25	75	100
		18U4CAN04	NMEC II: Web Designing	2	2	25	75	100

students in each semester.

ALLIED COURSES

Part	Sem	Course Code	Course	Credits	Hours	Marks		
						CIA	EA	Total
III	III	18U3CAA01	Allied-I: Programming in C	3	5	25	75	100
		18U3CAA02	Allied-I:Programming in Python	3	5	25	75	100
		18U3CAA03	Allied-I: Visual Programming	3	5	25	75	100
	IV	18U4CAA04	Allied-II: Programming in C++	3	5	25	75	100
		18U4CAA05	Allied-II: Computer Applications in Biology	3	5	25	75	100

		18U4CAA06	Allied-II: Internet and Computer Applications	3	5	25	75	100

ALLIED PRACTICALCOURSES

Part	Sem.	Course Code	Course	Credits	Hours	Marks		
						CIA	EA	Total
III	III	18U3CAAP01	Allied Practical-I: Programming in C	2	3	40	60	100
		18U3CAAP02	Allied Practical-I: Programming in Python	2	3	40	60	100
		18U3CAAP03	Allied Practical-I: Visual Programming	2	3	40	60	100
	IV	18U4CAAP04	Allied Practical-II: Programming in C++	2	3	40	60	100
		18U4CAAP05	Allied Practical-II: Computer Applications in Biology	2	3	40	60	100
		18U4CAAP06	Allied Practical-II: Internet and Computer Applications	2	3	40	60	100

PSO-1	Apply fundamental concepts and methods of Computer Science to a wide range of applications.
PSO-2	Understand the basic concepts of digital fundamentals, OOP concepts, Databases, web applications and hardware related applications.
PSO-3	Ability to understand the principles and working of computer systems.
PSO-4	Able to understand, analyze and develop computer programs in the areas related to algorithm, system analysis, web design and networking for efficient design of computer based system.
PSO-5	Ability to apply mathematical methodologies to solve computation task, model real world problem using appropriate data structure and suitable algorithm.

PSO-6	Student will able to know various issues, latest trends in technology development and thereby innovate new ideas and solutions to existing problems.
PSO-7	Gain knowledge and skill set in applying core concepts
PSO-8	Able to communicate effectively and to improve their competency skills to solve real time problems.
PSO-9	Analyze and apply latest technologies to solve problems in the areas of computer applications.
PSO-10	Design, implements, test, and evaluate a computer system, component, or algorithm to meet desired needs

CORE-I: Problem Solving Techniques

Semester: I **Credits: 3**
Code: 18U1CA01 **Hours: 5**

Objectives:

- To introduce basic computer concepts
- To apply methods for specific problems
- To understand the concept of swapping, counting, adding and factorial computation
- To introduce the algorithms for generating prime numbers and Fibonacci number

Unit-I

Introduction to Digital Computer : Introduction- Von Neumann Concept- Storage- Programming Languages- Translators- Hardware and Software- Operating Systems. **Problem Solving Strategies:** Problem Analysis- Algorithms- Flow Charts- Examples of Algorithms and Flow Charts.

Unit-II

Introduction to Computer Problem-Solving: Introduction- The Problem solving Aspect- Top-Down Design- Implementation of Algorithms- Program Verification- The Efficiency of Algorithms- The Analysis of Algorithms.

Unit-III

Fundamental Algorithms: Introduction- Exchanging the values of Two Variables- Counting- Summation of a set of Numbers- Factorial Computation- Generation of the Fibonacci Sequence- Reversing the Digits of an Integer.

Unit-IV

Factoring Methods: Introduction- Finding the Square Root of a Number- The Smallest Divisor of an Integer- Generating Prime Numbers- Computing the nth Fibonacci number.

Unit-V

Array Techniques: Introduction- Array Order Reversal- Array Counting or Histogramming- Finding the Maximum Number in a set- Partitioning an Array- Finding the Kth Smallest Elements.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand Von-Neumann concept	2
CO2:	Understand algorithm implementation	10
CO3:	Write algorithms for fundamental problems like swapping	4
CO4:	Able to understand and write factoring methods	5

Text Books:

1.E.Balagurusamy,"IntroductiontoComputing andProblemSolvingUsingPython"**,** McGrawHill Education , 2016.G. Dromey , "How to Solve it by Computer ", Pearson Education Inc.,Sixteenth Impression.

CORE-II: Programming In C

Semester: I **Credits: 3**
Code: 18U1CA02 **Hours: 5**

Objectives:

- To describe the basic structure of C program and its compilation and execution
- To discuss about decision making with if statement, if…else statement and switch statement
- To define the concept of Arrays
- To know the concept of pointer and determine how pointer variables used in a programs

Unit – I

Overview of C : History of C – Importance of C - Basic Structure of C Program – Executing a C Program. **Constants, Variables, and Data types:** Introduction-Character Set – C Tokens - Keywords and Identifiers – Constants – Variables – Data Types – Declaration of Variables - Declaration of Storage Class - Assigning values to variables – Defining symbolic constants. **Operators and Expressions.**

Unit – II

Managing Input and Output Operations: Reading and Writing a Character-Formatted Input and Output. **Decision Making and Branching:** Decision Making with If Statement - Simple IF- The IF-ELSE statement - Nesting of IF-ELSE Statements – The ELSE-IF Ladder- The Switch Statements – The ?: Operator – The GOTO Statement. **Decision Making and Looping:** The WHILE Statement – The DO Statement – The FOR Statement – Jumps in Loops

Unit – III

Arrays: Introduction-One-dimensional Arrays–Declaration and Initialization of 1D Arrays-Two- dimensional Arrays-Initializing 2D Arrays-Multi-dimensional Arrays-Dynamic Arrays. **Character Arrays and Strings**: Introduction Declaring and Initializing String Variables- Reading and Writing Strings-Arithmetic Operations on Characters-Putting Strings Together- Comparisons of Two Strings-String Handling Functions.

Unit – IV

User-defined Functions: Introduction – Need for User-defined Functions – A Multi- function Program – Elements of User -defined Functions– Definition of Functions – Return Values and their Types – Function Calls – Function Declaration – All Category of Functions – Nesting of Functions – Recursion – Passing Arrays to Functions – Passing Strings to Functions. **Structures and Unions:** Introduction-Defining and Declaring Structure Variables- Accessing Structure Members-Structure Initialization-Arrays of Structures-Arrays within Structures-Structures within Structures- Structures and Functions-Unions.

Unit – V

Pointers : Introduction-Understanding Pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Initialization of Pointer Variables- Accessing a Variable through its Pointer - Chain of Pointers – Pointer Expressions –Pointer Increments and Scale Factor - Pointers and Arrays – Pointers and Character Strings – Array of Pointers – Pointers as Function Arguments – Functions Returning Pointers – Pointers to Functions – Pointer and Structures . **File Management in C:** Introduction-Defining and Opening a File-Closing a File- I/O Operations on Files-Error Handling During I/O Operations-Random Access to Files-Command Line Arguments.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Write the basic C programs with variables and arithmetic operators, understand the fundamentals of C program.	2
CO2:	To develop conditional and iterative statements to write C programs.	4
CO3:	To choose the loops and decision making statements to solve the problem.	5,9
CO4:	Be able to write program to perform arrays on any dimensions, understand different string handling functions to carryout string manipulations.	4
CO5:	To understand how to write and use multiple functions to return values.	3,7

Text Book:

1. E.Balagurusamy, " Programming in ANSI C", Tata MC Graw-Hill, 7th Edition-2017.

   Unit-I (Chapter –I,II,III), Unit – II (Chapter IV,V,VI), Unit – III (VII,VIII), Unit-IV (Chapter - IX,X), Unit-V (XI,XII).

Reference Books:

1. Byron S.Gottfried, Jitender Kumar Chhabra, "Programming with C", Third edition, 2010.
2. Yashavant K.Kanetkar, "Let us C", Tenth edition, 2010.

Lab I : Programming in C

Semester: I **Credits: 2**
Code: 18U1CAP01 **Hours: 3**

1) Write a C program to perform Arithmetic operations.
2) Write a C Program to find the Largest of Three Number using Nested if….else statements.
3) Write a C Program to check whether the given string is Palindrome or not.
4) Write a C Program to arrange the N – Numbers in Ascending and Descending order.
5) Write a C Program to print the Fibonacci series.
6) Write a C Program to find the Factorial of a number using Recursion.
7) Write a C Program to illustrate String Handling Functions.
8) Write a C Program using Pointers.
9) Write a C Program Using Structures.
10) Write a C Program using File concept.

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ELECTIVE-I:Value Education: Yoga and Practice

Semester: I **Credits: 1**
Code: 18U1VE01 **Hours: 2**

Yoga:

VALUE EDUCATION YOGA		
Units	**Title of The Paper**	**Hrs. of Instruction per week**
Unit- I Yoga and physical health	1.1 Physical structure of human body 1.2. Simplified physical exercises 1.3 Maharasanas 1.4 Yogasanas	(5hours)
Unit-II Arts of Nurturing life force and Mind	2.1 Maintaining youthfulness 2.2 Sex and spirituality 2.3 Ten stages of Mind 2.4 Mental frequency	(5 hours)
Unit-III Sublimation	3.1 Purpose of life 3.2 Analysis of Thought 3.3 Moralization of Desire 3.4 Neutralization of Anger	(5 hours)
Unit- IV Human resource development	4.1 Eradication of Worries 4.2 Benefits of Blessings 4.3 Greatness of Friendship 4.4 Individual Peace	(5 hours)
Unit- V Law of Nature	5.1 Cause and Effect System	(5 hours)

Practical Exercise

1. Hand exercises
2. Leg exercise
3. Nero – Muscular Breathing exercise
4. Eye exercises
5. Kapalapathi
6. Makarasana (Part A or Part B)
7. Massage
8. Acu pressure
9. Relaxation

ASANAS

1. Padmasana
2. Vajrasanas
3. Chakrasanas (side)
4. Viruchasanas
5. Yoga muthra
6. Patchimothasanas
7. Ustrasanas
8. Vakkarasanas
9. Salabasan

CORE-III:Object Oriented Programming With C++

Semester: II **Credits: 3**
Code: 18U2CA03 **Hours: 4**

Objectives:

On completion of the course, the students will

- ✓ To introduce the object oriented programming approach and to identify the various control structures
- ✓ To determine function prototyping, call by reference and inline functions
- ✓ To introduce polymorphism and its types
- ✓ To introduce the formatted and unformatted I/O operations.
- ✓ To introduce the basics of templates and exception handling.

Unit – I

Principles of Object –Oriented Programming: Software Evolution – A Look At Procedure– Oriented Programming – Object –Oriented Programming Paradigm – Basic Concepts of Object – Oriented Programming – Benefits of OOP – Applications of OOP. **Beginning with C++ :** What Is C++ - Applications of C++ – A Simple C++ Program – More C++ Statements – An Example with Class – Structure of C++ program. **Tokens, Expressions and Control Structures:** Introduction – Tokens – Keywords – Identifiers and Constants – Basic Data Types – User defined Data Types – Storage Classes - Derived Data Types – Symbolic Constants – Type Compatibility – Declaration of Variables – Dynamic Initialization of Variables – Reference variables- Operators In C++ - Scope Resolution Operator – Member Dereferencing Operators – Memory Management Operators – Manipulators – Type Cast Operators - Expressions and Their Types

– Special Assignment Expressions – Implicit Conversions – Operator Overloading – Operator Precedence – Control Structures.

Unit – II

Functions in C++ : Introduction – The Main Function – Function Prototyping – Call By Reference – Return by Reference - Inline Functions – Default Arguments – Functions Overloading – Friend and Virtual Functions. **Classes and Objects :** Introduction – Specifying a Class – Defining Member Functions – A C++ program with Class – Making an Outside Function Inline – Nesting of Member Functions – Private Members Functions – Arrays within a Class – Memory Allocation for Objects – Static Data Members – Static Member Functions – Arrays of Objects – Objects as Function Arguments – Friendly functions – Returning Objects – Const Member Functions – Pointers to Member – Local Classes. **Constructors and Destructors**

: Introduction – Constructors – Parameterized Constructors – Multiple Constructors in a class – Constructors with Default Arguments – Dynamic Initialization of Objects – Copy Constructor – Dynamic Constructors – Constructing Two Dimensional Arrays – Const Objects – Destructors.

Unit – III

Operator Overloading and Type Conversions: Introduction – Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends – Manipulation of Strings using Operators – Rules for Overloading Operators – Type conversions. **Inheritance: Extending Classes:** Introduction – Defining Derived Classes – Single Inheritance – Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes – Constructors in Derived Classes – Member Classes: Nesting of Classes. **Pointers, Virtual Functions and Polymorphism :** Introduction – Pointers - Pointers to Objects - this Pointer – Pointers to Derived Classes – Virtual Functions – Pure Virtual Functions.

Unit - IV

Managing Console I/O Operations: Introduction – C++ Streams – C++ Stream Classes – Unformatted I/O Operations – Formatted Console I/O Operations – Managing Output with Manipulators. **Working with Files:** Introduction – Classes for File Stream Operations – Opening and Closing a File-Detecting End-of-File – More about Open(): File Modes –File Pointers and their Manipulations – Sequential Input and Output Operations – Updating a File: Random Access – Error Handling During File Operations – Command–Line A

Unit-V

Templates: Introduction – Class Templates – Class Templates with Multiple Parameters – Function Templates – Function Template with Multiple Parameters – Overloading of Template Functions – Member Function Templates. **Exception Handling:** Introduction - Basics of Exception Handling – Exception Handling Mechanism – Throwing Mechanism – Catching Mechanism – Rethrowing an Exception – Specifying Exceptions.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To understand the basic elements of a simple C++ program.	1,2
CO2:	Write a program used by constructors and destructors.	4,5
CO3:	To understand the concept of extending classes through inheritance.	7
CO4:	To implement the concept of pointers, polymorphism and virtual functions in a C++ program.	4,5
CO5:	Exercise file concept using formatted and unformatted I/O operations.	5
CO6:	To understand the concept of class template and function template.	7
CO7:	To develop a C++ program using exception handling mechanism	4

Text Book:

1. E. Balagurusamy, “Object Oriented Programming with C++”, TMH, Seventh Edition.

Unit-I (Chapter –I.II,III), Unit – II (Chapter IV,V,VI), Unit – III (VII,VIII,IX), Unit-IV (Chapter - X,XI), Unit-V (XII,XIII).

Reference Books:

1. D.Ravichandran , “Programming with C++”, TMH, Second edition.
2. M.T.Somashekara , “Programming in C++”, PHI, 2009.

Lab II : Programming With C++

Semester: II **Credits: 2**
Code: 18U2CAP02 **Hours: 4**

1. Write a C++ program to calculate NCR using function
2. Write a C++ Program by implementing classes and objects
3. Functions using call by value and call by reference
4. Operator overloading
5. Function overloading
6. Implementing Different types of Constructors
7. Implementation of Inheritance
8. Implementation of I/O Streams with text file and data file
9. Implementation of Templates
10. Implementation Exception Handling concepts

CORE-I:SBEC Lab- I: MS Office

Semester: II **Credits: 2**
Code: 18U2CASP1 **Hours: 3**

Ms Word

1. Text Manipulation – Change the Font Type and Style
    a. Prepare a Bio- Data
    b. Prepare a Letter
2. Usage of Numbering, Bullets, Headers and Footers
    a. Prepare a document in News paper Format
    b. Prepare a document in Brochure format
3. Tables and Manipulations – Creation, Insertion, Deletion
    a. Create a Mark sheet using Table

Ms Excel

4. Spread sheet using Formulas and functions
    a. SUM, AVERAGE, IF, COUNT, MIN, MAX,
5. Data sorting and Filtering
    a. Ascending , Descending
6. Creating Charts
    a. Pie Chart
    b. Bar chart

Ms Power Point

7. Inserting Clip and Pictures
    a. Create a slide show presentation for a seminar
8. Insertion of New Slides
    a. Prepare an Organization Chart
    b. Create a slide show presentation for an invitation
9. Usage of Design Templates
    a. Creation of a slideshow presentation to display mark sheet
    b. Creation of a slideshow presentation to display Percentage of students using Bar chart

Ms Access

10. Create an ACCESS database contains Students Information.

CORE- II :**Value Education: Values For Life**

Semester: II **Credit: 1**
Code: 18U2VE02 **Hours: 1**

Objective:

- To teach the meaning and essential of life through the values which determines the happy and successful.

Unit – I

Values: Introduction – meaning, objective, sources and types of values – Value inculcation- process, approaches and factors determining value inculcation. Case study: Social Awareness **Unit – II**

Human Individual Values: Ambition – Cleanliness-Contentment-Courage-Creativity- Determination-Dignity of Labour-Diligence-Discernment-Excellence-Honesty-Hope-Maturity- Regularity and Punctuality-Self Confidence-Self Motivation-Simplicity-Case Study: Cleanliness

Unit – III

Social Values: Accountability – Brotherhood- Concern for environment – Courtesy – Dialogue – Dutifulness – Forgiveness – Freedom – Friendship – Gratitude – Hospitality- Justice, Love – Patience – Responsibility – Service – sympathy – Team Spirit – Tolerance- Sharing and Sportsman spirit. Case Study: Responsibility.

Unit- IV

Moral and Spiritual Values: Faith – Detachment- Loyalty – Non-Violence – Obedience- Prayer – Purity- Renunciation and truthfulness. Case Study: Non-Violence

Unit- V

Behavioural values and Leadership Values: Manner- meaning, types and Basis of good manners, Table manners and Manner of tact and delicacy.Behaviour and conduct on superior,

through letters in society. Qualities and Functions of an effective leadership – Factors to develop leadership skills. Case Study: Fundamentals of Behavioral Values.

Reference Books:

1. Value for Life - Dr.S.Ignachimuthu, Better Yourself Book
2. Being Happy and Successful - Dr.S.Ignachimuthu, Better Yourself Book

Core- I : Module Syllabus For Environmental Studies For Under Graduate Courses of All Branches of Higher Education

Semester: II **Credits: 1**

Code: 18U2ES01 **Hours: 1**

Unit- I: The multidisciplinary nature of environmental studies:

Definition, Scope and importance of Environmental science, Need for public awareness. Natural Resources: General idea about the Natural resources, current status and types of resources - Forest resources, Water resources, Mineral resources, Food resources, Energy resources and Land resources. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

Unit- II: Ecosystems:

Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids. General idea about forest ecosystem, grassland ecosystem, desert ecosystems and aquatic ecosystem. Biodiversity and its conservation: Concept, origin, types, values, measurement and loss of biodiversity, Bio geographical classification of India, India as a mega-diversity nation, Hot spots of biodiversity, Endangered and endemic species of India and needs for conservation of biodiversity.

Unit-III : Environmental Pollution:

Definition and Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution. Thermal pollution and Nuclear pollution. Solid waste management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies and Disaster management: floods, earthquake, cyclone and landslides.

Unit-IV: Social Issues and the Environment:

Unsustainable to sustainable development. Water conservation- rain water harvesting and watershed management. Resettlement and rehabilitation of people. Environmental ethics. Global Environmental problems (Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust). Wasteland reclamation, Consumerism and waste products. General idea about Environmental laws: Environmental Protection Acts like Air, Water, Wildlife Protection and Forest Conservation act and Issues involved in enforcement of environmental legislation. Public awareness.

Unit-V: Human Population and the Environment:

Population growth and explosion, variation among nations. Family Welfare Programmes, Environment and human health. Human Rights,Value Education,HIV / AIDS, Women and Child Welfare, Role of Information Technology in Environment and Human Health. Field Work:Visit to a local area to document environmental assetsriver/forest/grassland/hill/mountain.Visit to a local polluted site – Urban / Rural / Industrial / Agricultural.Study of common plants, insects, birds. Study of simple ecosystems-pond, river, hill slopes, etc.

Reference Books:

1. Agarwal, K.C.2001 Environmental biology, Nidi publ.ltd.Bikaner.
2. Bharucha Erach, The biodiversity of India, Mapin publishing pvt.Ltd. , Ahmedabed-380 013, India, Email:mapin@icenet.net (R)
3. Brunner R.C., 1989, Hazardous waste Incineration, McGraw Hill Inc.480p
4. Clark R.S., Marine Pollution, clanderson press Oxford (TB)
5. Cunningham, W.P.Cooper, T.H.Gorhani, E & Hepworth, M.T.2001, Environmental encyclopedia, Jaico Publ. House, Mumbai, 1196p
6. De A.K., Environmental chemistry, Wiley Eastern Ltd.
7. Down to Earth, centre for science and Environmental(R)
8. Gleick, H.P.1993. Water in crisis, Pacific Institute for studies in Dev., Environment & Security. Stockholm Env. Institute. Oxford Univ. press.473p
9. Hawkins R.E, Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
10. Heywood, V.H & Watson, R.T.1995 . Global Biodiversity Assessment. Cambridge univ. press 1140p.
11. Jadhav, H & Bhosale, V.M. 1995. Environmental protection and Laws. Himalaya Pub. House, Delhi 284p.
12. Mckinney,M.L.& School , R.M.1996. Environmental Science systems & solution, Web enhanced edition. 639p.
13. Mhaskar A.K, Matter Hazardous, techno-Science publications (TB)
14. Miller T.G.Jr., Environmental Science, Wadsworth publishing Co. (TB)
15. Odum, E.P.1971. Fundamentals of Ecology. W.B.Saunders Co.USA, 574p
16. Rao M N. & Datta,A.K.1987. Waste water treatment. Oxford &Blbh publ. Co. pvt Ltd.345p.

CORE-IV: Data Structures And Algorithms

Semester: III **Credits: 3**

Code: 18U3CA04 **Hours: 5**

Objectives:

- **To give a fundamental knowledge on data structures.**
- **To understand about Arrays, Linked List**
- **To know Stack , Queues and its applications**
- **To impart non linear data structures such as Trees and Graphs .**
- **To understand the concepts of Searching and Sorting Techniques**

Unit-I:

Introduction to Data Structures: Introduction to the theory of Data Structures-Data Representation-Abstract Data Types-Data Types-Primitive Data Types-Data Structure and Structured Types-Atomic Type-Difference between Abstract Data Types, Data Types and Data Structures-Refinement Stages. **Principles of Programming and Analysis of Algorithm:** Software Engineering-Program Design-Algorithms-Different Approaches to Designing an Algorithm-Complexity-Big „O" Notation-Algorithm Analysis-Structured Approach to Programming-Recursion. **Arrays:** Introduction to Linear and Non-Linear Data Structures-Arrays in C-One-Dimensional Arrays-Array Operations-Two-Dimensional Arrays-Multidimensional Arrays-Pointers and Arrays-An Overview of Pointers.

Unit-II:

Linked List: Introduction to Linked List – Representation of Linked Lists in Computer Memory-Types of Linked List-Implementation of Linked List-Operations Performed on Linked List -Linked Stacks and Queues-Header Linked List-Manipulation of Polynomial using Linked List.

.**Unit-III:**

Stacks and Queues: Introduction-Representation of Stacks-Implementation of Stack - Polish Notation-Representation of Queues-Implementation of Queues-Circular Queue-Priority Queue- D-Queue-Applications of Stacks and Queues.

Unit-IV:

Trees : Introduction-What is a Tree Data Structure?-Binary Tree - Traversal Methods in Binary Tree-Representation of Algebraic Expression using Tree Structure-Recursive Algorithms- Binary Tree Representation-Applications of Binary Tree-Conversion of Forest Into Tree- Decision Tree and Game Tree-Binary Search Trees- B-Tree- B+ Tree-Heap Tree.

Unit-V:

Searching and Sorting: What is Searching?-Sequential and Binary Search-Indexed Search-Hasting Schemes-Hashing Functions-What is Hash Collision?-Sorting-Selection Sort- Bubble Sort-Insertion Sort -Quick Sort-Merge Sort-Radix Sort-Shell Sort-Heap Sort.

Graph: Introduction-Graph Representation-Traversal Schemes-Topological Sorting – Shortest Tree-Applications Path Algorithms-Spanning of Graphs.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To solve problems, ability to analyze algorithms and algorithm correctness,	8,9
CO2:	Summarize searching and sorting techniques, ability to describe stack, queue and linked list operation,	7
CO3:	To understand trees and graphs concepts.	7

Text Book:

1. Data Structures Using C,ISRD Group, McGraw Hill Education, Second Edition.(Unit-I)
2. Prof.Satish Jain and Shashi Singh,"DATA STRUCTURES" made simple – BPB Publications, 2006 ,New Delhi , India.(Unit –II ,III, IV, V).

Reference Book:

1. D. Samanta, "Classic Data Structures", Prentice Hall of India Private Limited, 2008.

CORE-V:System Analysis and Design

Semester: III **Credits: 3**

Code: 18U3CA05 **Hours: 5**

Objectives:

- **To understand the concepts System Development Life cycle.**
- **To know the concepts of Data Flow Diagram, Flow Chart and other Graphical Tools.**
- **To know how to design information system**
- **To learn about Design of input and control**
- **To understand quality assurance concepts**

Unit – I

Introduction to Information System Development: What is system Analysis and design? – Business system concepts – Categories of Information systems – System Development Strategies. Managing the application development portfolio: How system projects are begun – managing project review and selection – Preliminary investigation – Selection the project development – strategies.

Unit – II

Tools for determining system requirement: What is a requirements determination? – Fact finding techniques Tools for documenting procedure and decision. Structured Analysis development strategies: Structured analysis – Developing Data flow diagram.

Unit – III

Computer Aided systems tools: Role of tools – Categories of automated tools – CASE Tools – Benefits of CASE.**The Analysis to design transition:**

Specifying application requirements – Objectives in designing Information systems – What features must be designed? Design of computer output: How to identify computer Output needs – Designing visual Display output.

Unit – IV

Design of input and control: What concerns guide input design – Capturing data for input – Input validation. **Design of files and use of auxiliary storage devices:** Basic file terminology – Data structure Diagrams – Types of files – Methods of file organization.

Unit – V

Systems engineering and Quality assurance: Design objectives – Program structure charts – Design of software – Managing Quality assurance – Managing testing practices. **Hardware and Software selection:** Hardware selection – Software Selection.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Conduct a feasibility analysis, explain project deliverables.	8
CO2:	Explain the process of project Risk Management.	8,9
CO3:	Explain how to develop the project budget, identify and explain the project documentation.	6,10

Text Book:

1. James A. Senn , "Analysis and Design of Information Systems", TMH, New Delhi, 2nd Edition,2009.

Reference Book:

1. Elias M.Aawd, "System Analysis and Design", Galgotia Publications Pvt. Ltd., Second edition, 2002.

Lab - III : Data Structures Using C

Semester: III **Credits: 2**
Code: 18U3CAP03 **Hours: 4**

1. Write a program to insert and delete elements on array.
2. Write a program to search an element in the array using linear search.
3. Write a program to implement operations on linked list.
4. Write a program to implement operations on Stack.
5. Write a program to implement operations on Queue.
6. Write a program to convert an Infix Expression to Postfix Expression.
7. Write a program to perform Binary Tree Traversals.
8. Write a program to perform Binary Search.
9. Sort the given list of numbers using Merge Sort.
10. Sort the given list of numbers using Quick Sort

CORE-IV:Relational Database Management System

Semester: IV **Credits: 3**
Code: 18U4CA06 **Hours: 5**

Objectives:

- **To understand the concepts of Database concepts**
- **To understand the concepts of Relational Calculus**
- **Develop the logical design of the database using data modeling concepts such as entity-relationship diagrams**
- **To develop programming skills in PL/SQL**
- **Create a relational database using a relational database package, function and trigger.**

Unit-I

Introduction to Database Management Systems: Information Data and Data Management –File-based Data Management-Database Systems-Organization of a Database- Characteristics of Data in database-Database Management systems- Functions of DBMS- Components of a DBMS- Data Dictionary-Database Users. **Entity-Relationship (E-R) Modeling:** Introduction-E-R Model-Components of an E-R Model-E-R Diagram Conventions- Relationships-Composite Entities-Entity List-E-R Diagrams (ERDS)-E-R Modeling Symbols

Unit – II

Database concepts: A Relational approach. Database Design: Data Modeling and Normalization. **Oracle 9i:** An Overview.

Unit-III

Oracle Tables: Data Definition Language (DDL). **Working with Tables:** Data Management and Retrieval. **Working with Tables:** Functions and Groupings.

Unit – IV

Multiple Tables: Joins and Set Operators. Advanced Features: Objects, Transactions, and Data Control. **PL/SQL:** A programming Language. More on PL/SQL: Control Structures and Embedded SQL.

Unit – V

PL/SQL Cursors and Exceptions.PL/SQL Composite Data Types: Records, Tables, and VArrays.**PL/SQL Named Blocks:** Procedures, Functions, Package and Trigger.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Explain the features of database management systems and Relational database.	6
CO2:	Design conceptual models of a database using ER modeling for real life applications and also construct queries in Relational Algebra, create and populate a RDBMS for a real life application, with constraints and keys, using SQL, retrieve any type of information from a data base by formulating complex queries in SQL.	8,9
CO3:	Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database	9
CO4:	Build indexing mechanisms for efficient retrieval of information from a database.	10

Text Books:

1. Alexis Leon,Mathews Leon ,"Fundamentals of Database Management Systems",Tata McGraw Hill-2006 (Unit-I)
2. Nilesh Shah, "Database Systems Using Oracle", PHI Private Ltd, Second Edition, 2009. (Unit: II,III,IV,V)

Reference Book:

1. Abraham Silberschatz,Henry F.Korth, S.Sudarshan, "Database System Concepts", McGraw- Hill Fifth Edition, 2006.
2. Ramez Elmasri, "Database Systems: Models, Languages, Design and Application" , Pearson Education, 2014.

Lab – IV : RDBMS

Semester: IV **Credits: 2**

Code: 18U4CAP04 **Hours: 4**

1. i) Create an Oracle Table
   ii) Displaying information
   iii) Altering a table
   iv) Dropping, renaming and truncating a table
2. i) Retrieving data from a table
   ii) Arithmetic Operations
3. Built in Functions and Grouping
4. Joins and Set Operations
5. Views, Sequences and Synonyms
6. Selection Structure
7. Looping Structure
8. Data Manipulation in PL/SQL
9. PL/SQL Exception
10. Trigger

CORE-VII :Operating Systems and Linux

Semester: IV **Credits: 4**
Code: 18U4CA07 **Hours: 4**

Objectives:

- **To impart the basic commands in shell programming**
- **To give overview of Operating System.**
- **To know about process and threads**
- **To understand the concepts of Deadlock, Concurrency and Semaphores**
- **To understand the basic concepts in file management**

Unit – I

Operating System Overview: Operating System Objectives and Functions-Evolution of Operating Systems - Major Achievements. **Process Description and Control:** Process – Process States – Process Description and Control.

Unit – II

Threads: Process and Threads. **Concurrency:** Principles of Concurrency – Mutual Exclusion – Semaphores – Message Passing. **Deadlock:** Principles of Deadlock – Deadlock Prevention – Deadlock Avoidance – Deadlock Detection

Unit – III

Memory Management: Requirements **–** Memory Partitioning – Paging – Segmentation.

Virtual Memory: Hardware and control structures-Operating System Software.

Unit – IV

Uniprocessor scheduling: Types of processor – Scheduling – Scheduling algorithm – Multiprocess scheduling. **I/O management and disk scheduling:** I/O Devices – Organization of the I/O function – I/O buffering – Disk scheduling.

Unit – V

Introduction to Linux: Linux Distributions – Operating Systems and Linux – History of Linux and Unix – Linux Overview – Open Source Software – Linux Software – Online Linux Information Sources – Linux Documentation. **The Linux Shell and File Structure: The Shell:** The Command Line – History – File Name Expansion – Standard Input/output and Redirection – Pipes – Redirecting and Piping the Standard Error – Jobs: Background, Kills and Interruptions – Ending Processes – The C Shell – The TCSH Shell – The Z-Shell.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Know different commands in LINUX, analyze the structure of OS and basic architectural components involved in OS design,	7,2
CO2:	Analyze and design the applications to run in parallel either using process or thread models of different OS.	4
CO3:	Analyze the various device and resource management techniques for timesharing and distributed systems,	4
CO4:	Understand the Mutual exclusion, Deadlock detection and agreement protocols of Distributed operating system.	2,3

Text Book:

1. William Stallings,"Operating Systems Internals & Design Principles", Prentice – Hall of India P.Ltd, New Delhi – 110001, 5th Edition, 2008. (Unit – I ,II,III,IV)
2. Richard Petersen, "The Complete Reference Linux", Tata McGraw Hill, 6th Edition, 2010. (Unit – V)

Reference Book:

1. Achyut S.Godbole, Atul Kahate, "Operating Systems", TMH, 2004.
2. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, "Operating System Concepts", 9th Edition,Wiley 2018.

CORE-VIII: Event Driven Programming

Semester: V **Credits: 4**

Code: 18U5CA08 **Hours: 4**

Objectives:

- **To familiar with the Visual Basic software**
- **To know about the variables, editor features and decision maker**
- **To Understand about the MDI applications**
- **To know the procedure of DAO and ADO controls.**

Unit – I:

What is Visual Basic – Features of VB – Visual Basic Editions – The Visual Basic Philosophy - Developing an Application. Creating an Application: Objectives – The Tool Box – Project Explorer- The Properties Window – The Form Window- Understanding Projects – What Does Visual Basic6 Have for you to Create Applications. Forms and Controls: Objectives – The Form- Working with a Control – Opening the Code Window.

Unit –II:

Variables in VB: What is Variable – Multidimensional Array – Dynamic Array – The Preserve Keyword. Writing Code in VB – The Code Window – The Anatomy of a Procedure – Editor Features – The Decision Maker … If– The loop-The While Loop – Select Case … End Select. Working with Files: VB File System Controls – Types of Files – Working With Files.

Unit – III:

Menus: Building the User Interface – All about Menus. MDI Applications - Why

MDI Forms – Features of an MDI Form – Loading MDI Forms and Child Forms – The Active Form Property. Debugging Tips: Objectives – The Debugging Methods. The Common Dialog Control: Working with the Common Dialog Control – The File Open Dialog Box – Saving a File – Changing the Color – Printing a Document-Rich Textbox Control-Changing the Color of the Selected Text – Changing the Indent.

Unit – IV:

Introduction to Databases – Why Databases - What is Database – Which Database. Working with Data Control: The Data Control – The Bound Controls – Caution – Coding – Update Record and Update Controls Method – Finding a Record – The DBgrid Control. Data Access Objects: The Jet Database Engine – Functions of the Jet Database Engine – SQL – The DAO Object Model.

Unit – V:

ActiveX Data Objects: Why ADO – Establishing a Reference. Crystal and Data Reports: Crystal Reports – Data Reports. ActiveX: What is ActiveX - Why ActiveX? ActiveX and Web Pages: ActiveX and Internet.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To use Visual Basic"s form designer to create user interfaces	4
CO2:	Writing Visual Basic code in MDI forms and Rich Textbox controls	4,5
CO3:	Creating dialogs, menus, windows and use Windows common dialogs	4,5
CO4:	Able to create various applications like students mark sheet and library information system.	8
CO5:	Developing modular, reusable Visual Basic code and forms.	4

Text Book:

1. Mohammed Azam "Programming with Visual Basic 6.0", Vikas Publishing House (P)Ltd,2000.

Reference Book:

1. Noel Jerke, " The Complete Reference Visual Basic 6.0", TMH, 2002.

CORE-IX:Java Programming

Semester: V **Credits: 4**
Code: 18U5CA09 **Hours: 4**

Objectives:

- **To understand the concepts of Object Oriented Programming**
- **To gain knowledge about basic Java language syntax and semantics to write Java programs and use concepts such as variables, conditional and iterative execution methods etc**
- **To understand the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms**
- **To understand the principles of inheritance, packages and interfaces**

Unit-I

Fundamentals of Object Oriented Programming-Java evolution-Overview of java language.

Unit-II

Constants, Variables, and Data types-Operators and Expressions-Decision Making and Branching.

Unit-III

Decision making and Looping-Classes, Objects and Methods- Arrays, Strings and Vectors-Interfaces

Unit-IV

Packages-Multithreaded programming-Managing Errors and Exceptions

Unit-V

Applet Programming-Graphics Programming

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Get knowledge JDK Environment.	02
CO2:	Explore polymorphism using Function and Operator Overloading, overriding.	3,4
CO3:	Understand the different aspects of hierarchy of classes and their extensibility.	4,2
CO4:	Write programs for handling runtime errors using exception.	4
CO5:	Write programs using Applets and Graphics.	4

Text Book:

1. E. Balagurusamy,"Programming with Java", Tata McGraw Hill Pub. Ltd., 5th Edition, New Delhi.

Reference Book:

1. Muthu C, "Programming with Java", 2nd Edition, Vijay Nicole Publications, 2014. 2.Herbert Schild, "Java: The Complete Reference," Ninth Edition, Oracle Press, 2014

Department of Computer Science

Bachelor of Computer Application

CORE-X :Mobile Application Development

Semester: V **Credits: 5**
Code: 18U5CA10 **Hours: 5**
Course Objectives:

- **Understand the basic concept of mobile devices and types of mobile operating system**
- **Ability to know the concept of cross platform system architecture**
- **Use the development tools in the Android development environment**
- **To develop their own apps using the major components of Android API**
- **Use the Java programming language to build**

Android apps Unit-I

Mobile Application Development: Mobile Device Evolution – Smart Phone‟s- Tablet PC‟s – Classic MAD Challenges – Mobile Platform – Types of Mobile Platforms(Mobile OS) – Mobile Applications - Cross Platform Mobile Apps Development- Benefits of Cross Platform MAD – Cross Platform System Architecture.

Unit-II

ANDROID: Introduction to Android – History of Android – Android Architecture – App Architecture – Activities in Depth – Services in Depth– Installing the Android SDK – Installing an Android Platform – Creating an Android Virtual Device – Starting the AVD. CREATING ANDROID PROJECT: Starting a New Project in Eclipse - Deconstructing Your Project – Setting up an Emulator – Creating Launch Configuration – Running the Hello Android App – Understanding the Project Structure.

Unit-III

User Interface Recipies: Customizing the Window – Creating and Displaying Views – Creating Popup Menu Actions – Scrolling Text View Ticker – Animating a View – Creating Draw Tables as Backgrounds – Applying Masks to Images.

Unit-IV

Understanding Android Resources : Understanding Resources - Dimensions - Styles - Themes - Values - Menus – Colors - Working with Resources - Moving Strings into Resources - Making Your Apps Global with Resources. Turning Your Application Into A Home-Screen Widget: Working with App Widgets in Android - Working With Remote Views - Using App Widget Providers - Working With Pending Intents - Understanding the Android Intent System - Understanding Intent Data - Evaluating Intents - Using Pending Intents - Creating the Home- Screen Widget - Implementing the App Widget Provider Communicating with the App widget - Building the App Widget‟s Layout - Doing Work Inside an App Widget Provider.

Unit-V

Persisting Data: Persisting Data – Reading and Writing Files – Using Files As Resources- Managing Database – Querying the Database – Backing Up Data – Sharing Your Database – Sharing Your Other Data.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand various mobile application development tools	1
CO2:	Clearly known about Android	5
CO3:	Understand user interface methods	6
CO4:	Known about android resources	8
CO5:	To create mobile application	10

Text Books

1. Yonathan Akilu Redda, “Cross Platform Mobile Applications Development” NTNU, 2012 Unit-I.
2. Dave smith, Jeff Friesen, “Android Recipes Problem Solution Approaches”, Apress, 2011. Units IIa, III, V.
3. Donn Felker, “Android Application Development for dummies”, Wiley Publishing Inc, 2011. Unit-IIb, IV.

Reference Books

1. Jerome J.F DiMarzio,”Android a programmers guide” McGraw-Hill,2008.

Lab V: Event Driven Programming

Semester: V **Credits: 2**

Code: 18U5CAP05 **Hours: 3**

1. Construction of an Arithmetic Calculator (Simple)
2. Working with List Box and Combo Box Control
3. Working with MDI Form
4. Working with Rich Text Box Control
5. Create an Animation Using picture box control
6. Working with File Open Dialog Box
7. Working with Save Dialog Box
8. Preparation of Students Mark Sheet.
9. Personal Information System (Using Tables)
10. Library Information System (Using Tables).

Lab VI: Java Programming

Semester: V **Credits: 2**
Code: 18U5CAP06 **Hours: 3**

1. Classes and Objects.
2. Strings
3. Constructors.
4. Inheritance.
5. Packages
6. Interfaces.
7. Exception Handling.
8. Threads.
9. Applet.
10. Graphics

CORE-XI:Open Source Technologies

Semester: VI **Credits: 4**
Code: 18U6CA11 **Hours: 4**

Objectives:

- **To familiar with the PHP and MySql**
- **To know the concepts of branching and looping**
- **To understand how to create tables**
- **To know how to connect databases**

Unit: I

Getting Started: Introducing PHP & MY SQL-Understanding The Cloud-Installing Abyss

Web Server-Installing The PHP Engine-Configuring Abyss For PHP-Embedding PHP Script- Installing The MYSQL Server-Employing The MYSQL Client-Creating MYSQL Users- Connecting MYSQL With PHP. Performing Operations: Creating Variables-Managing Strings- Producing Arrays-Sorting Arrays-Describing Dimensions-Doing Arithmetic-Comparing Values- Assessing Logic-Defining Constants.

Unit-II:

Controlling Progress: Branching Alternatives-Switching Branches-Performing Loops- Looping While True - Breaking From Loops-Creating Functions-Passing Arguments-Returning Values. Producing Forms: Performing Actions-Checking Set Values-Validating From Data- Sending Hidden Data-

Handling Submissions-Making Sticky Forms-Surrounding Forms- Appending Link Data-Moving Location.

Unit-III:

Assembling Tables: Introducing Tables- Creating Tables-Defining Data Types-Adding Modifiers-Setting Primary Keys-Altering Tables. Handling Data: Inserting Data-Updating Columns-Updating Fields-Deleting Data-Selecting Data-Retrieving Columns-Retrieving Rows- Sorting Data-Setting Direction-Making Comparisons.

Unit-IV:

Connecting Databases: Making Connection-Executing Queries-Retrieving Results- Applying Changes-Counting Records-Updating Records-Validating Results-Ensuring Security- Handling Errors. Registering Users: Creating A Users Database - Providing A Register Page- Processing Registrations-Providing A Login Page-Supplying Login Tools-Processing Login Attempts-Confirming Login Success.

Unit-V:

Providing Forums: Creating A Forum Database-Providing A Forum Page-Supplying A Message Form-Processing Posted Messages- Confirming Post Success. Processing Shops: Creating A Shop Database-Creating An Orders Databases-Providing A Shop Page-Confirming Cart Additions-Processing Shopping Carts-Checking Out Orders-Confirming Logout Success.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To recognize the benefits and features of Open Source Technology.	7
CO2:	Interpret, Contrast and compare open source products among themselves.	4
CO3:	Understand and demonstrate Version Control System along with its commands.	10

Text Book:

1. Mike McGrath,"PHP & MYSQL" –TATA McGraw– Hill Education Private Limited, New Delhi-2012.

Reference Books:

1. "Head First PHP & MySql", Lynn Beighley, Michael Morrison, O'Reilly Media, Inc, 2008

CORE-XII:Computer Networks

Semester: VI **Credits: 5**
Code: 18U6CA12 **Hours: 5**

Objectives:

- **To understand about different types of networks**
- **To know the transmission media**
- **To understand about different layers of networks**
- **To give the routing, congestion algorithm and cryptography.**

Unit-I

Network Hardware: LAN – WAN – MAN – Wireless – Home Networks. Network Software: Protocol Hierarchies – Design Issues for the Layers – Connection-oriented and connectionless services – Service Primitives – The Relationship of services to Protocols. Reference Models: OSI Reference Model – TCP/IP reference Model – Comparison of OSI and TCP/IP -Critique of OSI and protocols – Critique of the TCP/IP Reference model.

Unit-II

PHYSICAL LAYER - Guided Transmission Media: Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics. Wireless Transmission: Electromagnetic Spectrum – Radio Transmission – Microwave Transmission – Infrared and Millimeter Waves – Light Waves. Communication Satellites: Geostationary, Medium-Earth Orbit, Low Earth-orbit Satellites – Satellites versus Fiber.

Unit-III

DATA-LINK LAYER: Error Detection and correction – Elementary Data-link Protocols – Sliding Window Protocols. MEDIUM-ACCESS CONTROL SUB

LAYER: Multiple Access Protocols – Ethernet – Bluetooth.

Unit-IV

NETWORK LAYER: Routing algorithms – Congestion Control Algorithms.

TRANSPORT LAYER: Elements of Transport Protocols – Internet Transport Protocols: TCP.

Unit-V

APPLICATION LAYER**:** DNS – E-mail. NETWORK SECURITY: Cryptography – Symmetric Key Algorithms – Public Key Algorithms – Digital Signatures.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Independently understand basic computer network technology	1,2
CO2:	Identify the different types of network topologies and protocols	2
CO3:	Explain the function(s) of each layer	3
CO4:	Understand and building the skills of submitting and routing mechanisms	3

Textbooks:

1. Andrew S. Tanenbaum ,"Computer Networks", PHI ,4th edition.
   (UNIT-I:1.2-1.4 UNIT-II:2.2-2.4 UNIT-III:4.2-4.6 UNIT-IV:5.2,5.3,6.2,6.5 UNIT- V:7.1,7.2,8.1- 8.4)

Reference Books:

1. Achyut Godbole, " Data Communication and Networks", TMH, 2007,
2. Uyless Black, "Computer Networks Protocols Standards and Interfaces", PHI, 2nd Edition.

Lab VII : PHP and MYSQL

Semester: VI **Credits: 2**

Code: 18U6CAP07 **Hours: 3**

1. PHP Program to create an array and describe their dimensions.
2. PHP Program to sort arrays.
3. PHP Program to compare values.
4. Write PHP program to print first 10 Fibonacci numbers.
5. PHP Program to implement AND and OR Truth Table.
6. PHP Program to validate form data.
7. Table manipulation using MySql.
8. User Registration Page Creation.
9. Forum Page Creation.
10. Shop processing.

Lab VIII : S/W Development Lab

Semester: VI **Credits: 3**

Code: 18U6CAP08 **Hours: 4**

The objective of the S/W Development Lab is to motivate the students to work in emerging/latest technologies, help the students to develop ability, to apply theoretical and practical tools/techniques to solve real life problems related to industry, academic institutions and research laboratories.

The project is of 4 hours/week for one (semester VI) semester duration and a student is expected to do planning, analyzing, designing, coding, and implementing the project. The initiation of project should be with the project proposal. The synopsis approval will be given by the project guides.

The project proposal should include the following:

- Title
- Objectives
- Input and output
- Details of modules and process logic
- Limitations of the project
- Tools/platforms, Languages to be used
- Scope of future application

For the project work, the guide(internal) evaluate the work for 40 marks based on the performance of the candidates during the development of the project and the external examiner will evaluate the project work as follows:

Project Report - 30 marks Viva-Voce – 30 marks

The Project work should be either an individual one or a group of not more than three members.

ELECTIVE I : Software Engineering

Semester: V **Credits: 3**
Code: 18U5CAE01 **Hours: 4**

Objectives:

- **To understand the Software product and System Engineering**
- **To know the concepts of Object Oriented Software Engineering**
- **To understand about different testing strategies in the software development.**
- **To give the reengineering and reverse engineering concepts.**

Unit-I

Introduction: The evolving role of software-software-the changing nature of software –legacy software-software myths. The software process – layered technology-process framework - CMMI-process patterns-process assessments-personal and team process models-process technology-product and process. Process models-prescriptive models-waterfall model- incremental –evolutionary-specialized process models-the unified process models.

Unit-II

An agile view of process –what is agility?-what is an agile process?-agile process models. system engineering-computer based systems-the system engineering hierarchy-business process engineering-an overview product engineering-an overview system modeling. Requirement engineering a bridge to design and construction-tasks-initiating the requirements engineering process-eliciting requirements-develop use cases-building the analysis model-negotiating, validating requirement.

Unit-III

Creating an architectural design –software architecture –data design-architectural styles and patterns- architectural design-assessing alternative architectural designs-mapping data flow into a software architecture. Performing user interface design-golden rules-user interface analysis design-interface analysis-interface design steps-design evaluation

Unit-IV

Testing strategies: a strategic approach to software testing-strategic issues-test strategies for conventional software-the strategies for object oriented software-validation testing-system testing-the art of debugging. Testing tactics-software testing fundamentals-black box testing- white box, basis path, control structure and object oriented testing methods.

Unit-V

Testing applicable at class level- inter class test case design-testing for specialized environments, architectures and application. Project management: management spectrum-the people –the product –the process-the project-WHH principle. Reengineering: business process reengineering- software, reverse reengineering –reconstructing-forward and economics of reengineering.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Select and implement different software development process models, extract and analyze software requirements specifications for different projects.	4
CO2:	Develop some basic level of software architecture/design, apply standard coding practices, define the basic concepts and importance of Software project management concepts like cost estimation, scheduling and reviewing the progress.	4

Text Book:

1. Roger S. Pressman," Software Engineering" A Practitioner‟s approach ,6 th edition, New Delhi.

Reference Book:

1. Roger S. Pressman," Software Engineering" A Practitioner‟s approach ,5 th edition, New Delhi.
2. Roger S. Pressman," Software Engineering" A Practitioner‟s approach ,8 th edition, New Delhi.

ELECTIVE I : Software Project Management

Semester: V **Credits: 3**
Code: 18U5CAE02 **Hours: 4**

Objectives:

- **To know of how to do project planning for the software process.**
- **To learn the cost estimation techniques during the analysis of the project.**
- **To understand the quality concepts for ensuring the functionality of the software**

Unit – I:

Product life cycle: Introduction – Idea generation – Prototype development phase –Alpha phase – Beta phase – Protection phase – Maintenance and obsolescence phase. Project Life cycle models – What is it? A framework for studying different life cycle models – waterfall model, prototype model, RAD model, spiral model. Metrics: Metric roadmap- metric strategy why to measure - set target, tracks them, understand and minimize variability, Act on data- Common fit falls

Unit – II:

Software configuration management: Basic definitions and terminology- He process and activities of Software configuration audit – Software configuration management in geographically distributed teams - Metrics in software configuration management – Tools and automation. Software quality assurance Defining quality, importance of quality, quality control and assurance – Cost and benefits of quality – Software quality analyst"s functions, SQA tools, measures for SQA success- pitfalls.

Unit –III:

Requirement gathering: Inputs and start criteria for requirements,

dimensions for requirement gathering, steps, to be followed, output and quality records, skill sets - Estimation – What is estimation, when and why is it needed, three phases of estimation- Estimation methodology- models for size estimation - Converting effort to schedule.

Unit – IV:

Design and development phase: Some differences in chosen approach – Salient features of design- Evolving an architecture, blue print- design for reusability technology choices/ constraints – Design standards – Design for portability- User interface issues – Design for testability – Design for diagnosability- Design for maintainability- Designs for install ability and interoperability.

Unit – V:

Project management testing and maintenance: Testing – Activities that make testing test scheduling and types of tests – People issues in testing management structures for testing – Metrics. Introduction to management phase- Configuration management, skill sets, estimating size, effort, and people resources for maintenance, metrics.

Co.No	Upon completion of this course, students will be able to	PSO addressed
CO1:	Understand the activities during the project scheduling of any software application, learn the risk management activities and the resource allocation for the projects,	4
CO2:	Can apply the software estimation and recent quality standards for evaluation of the software projects.	10
CO3:	Acquire knowledge and skills needed for the construction of highly reliable software project	8,10

Text Books:

1.Gopal swamy Ramesh ,"Managing Global software projects" Tata McGraw Hill

2.S.A. Kelkar "Software project management – a concise study", Prentice – Hall of India P.Ltd, New Delhi, 2003.

ELECTIVE I : Software Testing

Semester: V **Credits: 3**
Code: 18U5CAE03 **Hours: 4**

Objectives:

- **Employ correct testing terminology throughout the testing process.**
- **Execute specific software tests with well-defined objectives and targets.**
- **Apply various testing techniques, including domain, code, fault, usage and model- based.**
- **Execute program and test evaluations.**
- **Perform a complete testing process, taking into account practical considerations**.

Unit -I

Building a Software Testing Strategy – Software Testing Design Techniques – Software Testing Tools and Selection of Test Automation Products – Software Testing Lifecycle and Software Testing Process

Unit -II

Testing Effort Estimation and Test Planning – Software Test Effort Estimation Technique – Pre-Development Testing Requirements and Design Phase – Best Practices in Program Phase Unit, System and Integration Testing

Unit- III

A Case Study on Acceptance Testing – Implementation an Effective Test Management Process – Building an Effective Test Organization – Performance Issues and Optimization Techniques

Unit -IV

Choosing a Load Testing Strategy – Dodging the Bullets – Validating Mission-Critical Server Software for Reliability – Probing the Blind Spot – Testing in Today"s Business and Usability

Unit- V

Testing of Web-based Applications – Testing of Embedded Software System used in Aerospace Applications – Testing Application for Security – Testing Metrics, Best Practices and Benchmarks

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Various test processes and continuous quality improvement, types of errors and fault Models, Methods of test generation from requirements	10
CO2:	Input space modeling using combinatorial designs, Combinatorial test generation, Test adequacy assessment using: control flow, data flow, and program mutations, The use of various test tools, application of software testing techniques in commercial environments.	10, 8

Text Book:

1. Renu Rajani and Pradeep Oak, "Software Testing Effective Methods, Tools and Techniques", Tata McGraw-Hill.

Reference Book:

1. William E.Perry, "Effective Methods for Software Testing", Wiley India, Third edition, 2007.

ELECTIVE II: Artificial Intelligence

Semester: V **Credits: 3**

Code: 18U5CAE04 **Hours: 4**

Objectives:

- **To understand problems and techniques in AI**
- **To Understand about different searching techniques in AI**
- **To know the expert system**

life cycle Unit -I

Introduction: AI Problems – AI techniques – Criteria for success. Problems, Problem Spaces, Search: State space search – Production Systems – Problem Characteristics – Issues in design of Search.

Unit - II

Heuristic Search techniques: Generate and Test – Hill Climbing – Best-Fist, Problem Reduction, Constraint Satisfaction, Means-end analysis.

Unit - III

Knowledge representation issues: Representations and mappings – Approaches to Knowledge representations – Issues in Knowledge representations – Frame Problem.

Unit - IV

Using Predicate Logic: Representing simple facts in logic – Representing Instance and Isa relationships – Computable functions and predicates – Resolution – Natural deduction.

Unit - V

Representing knowledge using rules: Procedural Vs Declarative knowledge – Logic programming – Forward Vs Backward reasoning – Matching – Control knowledge Brief explanation of Expert Systems-Definition- Characteristics-architecture- Knowledge Engineering- Expert System Life Cycle-Knowledge Acquisition Strategies- Expert System Tools.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Demonstrate knowledge of the building blocks of AI as presented in terms of intelligent agents.	1,2
CO2:	Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based techniques to solve them,	4
CO3:	Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing ,Attain the capability to represent various real life problem domains using logic based techniques and use this to perform inference or planning.	4,8

Text Book:

1. Elaine rich and Kelvin Knight, "Artificial Intelligence ", Tata McGrawhill Publication, 2nd Edition, 1991.
   Unit I (Chapter I, II) , Unit II (Chapter III), Unit III (Chapter IV), Unit IV (Chapter V), Unit V (Chapter VI)

Reference Books :

1. Stuart Russell & Peter Norvig, "Artificial Intelligence a modern Approach ",Perason Education , 2nd Edition
2. George F Luger , "Artificial Intelligence ", Pearsons Education, 4th Edition , 2002.
3. V.S.JANAKI RAMAN, K.SARUKESI , P.GOPALAKRISHNAN, "Foundations of Artificial Intelligent and Expert Systems", , MacMillan India limited.,

ELECTIVE II: Management Information System

Semester: V **Credits: 3**

Code: 18U5CAE05 **Hours: 4**

Objectives:

- To evaluate the role of information systems in today's competitive business environment.
- To identify and describe important features of organizations in order to build and use information systems successfully.
- To demonstrate systems analysis, design and decision making in a business setting

Unit – I

MIS Concept – Definition – Role of Management – Impact – MIS and the user – Role and Importance of Management – Process of Management: Planning – Organizing – Staffing – Coordinating and Directing – Controlling.

Unit – II

Strategic management of business and planning – Decision making: Concepts – methods, tools and procedures – Organizational Decision making – Information.

Unit – III

Development of MIS: Ascertaining, Determining the information requirement – Development and Implementation of the MIS – Organization for Development of the MIS –Information Technology.

Unit – IV

Application of MIS in manufacturing sector – Decision support system – Enterprise Management System.

Unit – V

Object-oriented Technology (OOT) – Client Server Architecture – Business process Re-engineering (BPR)

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Assess how information systems support the activities of managers and end-users in organizations	6
CO2:	Identify the principal management challenges posed by the ethical and social impact of information systems and management solutions.	4

Text Book:

1. Management Information System – W.S. Javadekar, TMH.

ELECTIVE II: Enterprise Resource Planning

Semester: V **Credits: 3**

Code: 18U5CAE06 **Hours: 4**

Course Objectives:

- **To learn the basic concepts of ERP.**
- **To learn different technologies used in ERP.**
- **To learn the concepts of ERP Manufacturing Perspective and ERP Modules.**
- **To learn what are the benefits of ERP**
- **To study and understand the ERP life cycle.**
- **To learn the different tools used in ERP.**

Unit – I

Introduction to ERP: Evolution of ERP – What is ERP? – Characteristics of ERP – Features of ERP– Need for ERP- Benefits of ERP – Enterprise – an Overview – ERP and related Technologies : Business Process Reengineering – Management Information System – Decision Support System – Executive Information System – Data Warehousing – Data Mining – On-line Analytical Processing(OLAP) – Supply Chain Management.

Unit – II

ERP- A Manufacturing perspective: Introduction - CAD/CAM - Materials requirement planning Bill of Material - Closed loop MRPManufacturing resource planning – Distribution requirements planning- Production data management - Data management – Process management Benefits of PDM.

ERP Modules: Finance management – manufacturing management – Plant maintenance – Quality management – Materials management – Human resources – Sales and distribution.

Unit – III

ERP Market: SAP AG – Baan company – Oracle corporation – People soft – JD Edwards world solution"s company – QUAD – System software associates Inc. (SSA). ERP Implementation life cycle: Preevaluation screening – Package evaluation – Project planning phase – Gap analysis – Re-Engineering – Configuration – Implementation team training – Testing - End – user training – Post Implementation.

Unit – IV

Selection of ERP: Difficulty in selecting ERP – Approach to ERP selection – "Request For Proposal" approach – Proof of Concept (POC) approach - application of POC approach – Comparison of RFP and POC approach – Analytic Hierarchy Process approach - application of AHP in evaluation of ERP - Vendor , Consultants and Users – Future directions in ERP.

Unit – V

ERP Resources on the Internet – ERP Case studies.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand the basic concepts of ERP, identify different technologies used in ERP. understand and apply the concepts of ERP Manufacturing Perspective and ERP Modules.	2
CO2:	Discuss the benefits of ERP, understand and implement the ERP life cycle, apply different tools used in ERP.	10

Text Book

1. Alexis Leon, Enterprise Resource Planning, 1999, Tata McGraw Hill.(Chapters: 1,2,3,4,5,6,7,8,9,10,11)
2. Ravi Shankar S.Jaiswal, Enterprise Resource Planning 1999, Galgotia Publications Pvt. Ltd. (Chapters: 1,9)

Reference Book

1. Alexis Leon, ERP Demystified, 2000, Tata McGraw Hill.
2. Ashim Raj Singla, Enterprise Resource Planning, 2008, Cengage Learning India Pvt. Ltd. New Delhi.

ELECTIVE III: Cyber Crime and Security

Semester: VI **Credits: 3**

Code: 18U6CAE07 **Hours: 4**

Objectives:

- **To learn the basic concept of cyber crime and its prevention.**
- **To understand the hacking and the laws**
- **To know the economic impacts of cyber crime**
- **To understand how to prevent cyber crimes**

Unit- I

A New High Tech Crime Paradigm – Perception of cybercrime – A brief history and analysis of the internet – Cybercrime classification – Challenges for criminology, criminal justice and policing.

Unit- II

Hackers and hacking: Introduction – Representation – myths and realities – Hacking and the law. Attacks and Crimes: Introduction – Types of Abuse, Attacks and Crime – Evolving Forms of Cyber crimes, Attacks and Conflict – Computer Abusers and Cyber criminals.

Unit- III

Introduction – Theories – Classical Criminology – Trait Theories – Social Process Theories – Social Structure Theories – Conflict Theories – Integrated Theories – The Social and Economic Impacts of Cyber crime – Emerging Crime – Related Issues and Controversies.

Unit- IV

Cyber Laws and Regulations: Introduction – The Rationale and Reach of Cyber Laws – Laws and Regulations are Created and Administered – Bodies of U.S. Law Pertaining to IT and Cyber crime Issues – Federal Cyber crime Laws and InfoSec Regulations – Investigating and Prosecuting Cyber crime: Introduction – Criminal Justice System Components – Legal Issues Governing Investigative Procedures – Crime Scene Processing and Evidence Management – Prosecuting Cyber criminals.

Unit- V

Preventing Cyber crime via Information Security: Introduction – Personal and Organizational Information Security Protocols – Advancing the Security Posture of Organizations – The Purpose and the Value of Auditing – Future Opportunities for Managing Cyber crime: Introduction – Government Prevent Cyber crime – Transformation of Information Security Folk Artistry – Career Opportunities.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand the different theoretical and cross-disciplinary approaches to the study of cyber-security and the regulation of the Internet and the Internet of Things	4
CO2:	Understand the structure	3,5
CO3:	Distinguish and classify the forms of cybercriminal activity and the technological and 'social engineering' methods used to undertake such crimes	6

Text Books:

1. C.Sam McQuade**,** "Understanding and Managing Cyber crime", Prentice Hall, 2006.

2. Dr. Majid Yar, "Cyber crime and Society",: Sage Publications Ltd , 2006.

Reference Book:

1.T.Marjie Britz, "Computer Forensics and Cyber Crime – An Introduction", Prentice Hall of India, 2003.

ELECTIVE III: Data Warehousing and Data Mining

Semester: VI **Credits: 3**

Code: 18U6CAE08 **Hours: 4**

Objectives:

- **To understand the concepts of Data mining**
- **To understand the concepts of different Clustering Techniques**
- **To know the concepts of Web Mining and Data Warehousing**

Unit – I

Introduction: What is Data mining?-Why Data mining now?-The Data mining process- Data mining application – Data mining techniques – Data mining case studies- The future of data mining – Guide lines for successful data mining- Data mining software - Association Rules Mining: Introduction- Basics-The Task and a Naïve algorithm- The Apriori algorithm – Improving the Efficiency of the Apriori algorithm – Apriori-Tid-Direct Hashing and Pruning(DHP)-Dynamic Itemset Counting(DIC)- Mining frequent pattern without candidate generation (FP-growth) – Performance evaluation of algorithms-Software for association rule mining.

Unit – II

Classification : Introduction – Decision Tree – Building a Decision Tree-The Tree Induction algorithm-Split Algorithm Based on Information theory- Split Algorithm Based on Gini Index- Over fitting and pruning – Decision Tree rules- Decision Tree Summary- Naïve Bayes Method- Estimation Predictive Accuracy of Classification Methods - Other Evaluation Criteria for Classification Method – Classification Software.

Unit – III

Cluster Analysis: What is Cluster Analysis? –Desired Features of Cluster Analysis- Types of Data – Computing Distance -Types of Cluster Analysis Methods - Partitional Methods – Hierarchical Methods – Density Based Methods –Dealing with Large Databases – Quality and Validity of Cluster Analysis Methods - Cluster Analysis Software.

Unit – IV

Web Data Mining : Introduction - Web Terminology and Characteristics- Locality and Hierarchy in the Web- Web Content Mining-Web Usage Mining- Web Structure Mining – Web Mining Software.

Unit – V

Data Warehousing: Introduction – Operational Data Stores- ETL- Data Warehouses – Data Warehouse Design – Guidelines for Data Warehouse Implementation - Data Warehouse Metadata- Software for ODS, ZLE, ETL and Data Warehousing. Online Analytical Processing (OLAP): Introduction – OLAP- Characteristics of OLAP Systems – Multidimensional View and Data Cube - Data Cube Implementations - Data Cube Operations-Guidelines for OLAP Implementation – OLAP Software.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Describe the fundamental concepts, benefits and problem areas associated with data warehousing	1
CO2:	Describe the various architectures and main components of a data warehouse, design a data warehouse, and be able to address issues that arise when implementing a data warehouse	8
CO3:	Compare and contrast OLAP and data mining as techniques for extracting knowledge from a data warehouse.	9

Text Book:

1. "Introduction to Data mining with Case Studies", G.K. Gupta, PHI Private Limited, New Delhi, 2009.

Reference Book :

1. Jiawei Han & Micheline Kamber, " Data Mining Concepts & Techniques" , Academic Press, 2001.

ELECTIVE III: Knowledge Management

Semester: VI **Credits: 3**

Code: 18U6CAE09 **Hours: 4**

Objectives:

- Define and discuss the key components of information and knowledge management infrastructure
- Understand how information and knowledge management depends on infrastructure
- Understand the relations between different components of information and knowledge management infrastructure
- Provide examples of the ways in which information and knowledge management infrastructure impacts contemporary organizations
- Analyze and discuss issues related to information and knowledge management infrastructure

Unit - I

Understanding knowledge: the core of business: What Is Knowledge Management, Multidisciplinary Nature of KM, Drivers of KM, The Two Major Types of Knowledge, The Concept Analysis Technique, History of Knowledge Management, From Physical Assets to Knowledge Assets, Organizational Perspectives on Knowledge Management,:Knowledge, Intelligence, Experience, Common sense. Cognition and KM. Types of Knowledge, Knowledge Management architecture and Implementation Strategies.

Unit - II

The knowledge management cycle: Knowledge Management System Life Cycle, Major Approaches to the KM Cycle, The Zack KM Cycle, The Bukowitz and Williams KM Cycle.

Unit - III

Knowledge sharing and communities of practice: The Social Nature of Knowledge, Sharing Communities, Types of Communities, Roles and Responsibilities in CoPs, Knowledge Sharing in Virtual CoPs, Data Mining and Knowledge Discovery, Blogs, Content Management Tools, Knowledge Sharing and Dissemination Tools.

Unit - IV

Knowledge application: KM for Individuals, Communities and Organizations, Future Challenges for KM. Knowledge Application at the Individual, Group & Organizational Levels, Characteristics of Individual Knowledge Workers, Task Analysis and Modelling, EPSS, Knowledge Reuse, Knowledge Repositories, Strategic & Practical Implications of Knowledge Application

Unit – V

KM strategy and metrics: Knowledge Management Strategy, Knowledge Audit, Gap Analysis, The KM Strategy Road Map, The Management of Organizational Memory, Balancing Innovation and Organizational Structure, Historical Overview of Metrics in KM, KM Metrics, The Benchmarking Method, The Balanced Scorecard Method.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Know the key components of information and knowledge management infrastructure.	4
CO2:	Understand how information and knowledge management depends on infrastructure.	3
CO3:	Understand the relations between different components of information and knowledge management infrastructure	3
CO4:	Understand the issues related to information and knowledge management infrastructure	2,3

Text Book:

1.Ronald Maier, “Knowledge Management Systems” , Springer,2001.

Reference Book:

1.Klaus North,Gita Kumta , “Knowledge Management” Second Edition,Springer

ELECTIVE IV: Web Technology

Semester: VI **Credits: 3**

Code: 18U6CAE10 **Hours: 4**

Objectives:

- **To understand the concepts of TCP/IP**
- **To know the basics of WWW**
- **To understand ASP ,JSP**
- **To know XML and WAP**

Unit-I

TCP/IP: TCP/IP Basics – Why IP address – Logical Address - TCP/IP Example- The concept of IP address – Basics of TCP – Features of TCP – Relationship between TCP and IP – Ports and Sockets – Connections- Active Open and Passive Open - TCP Connections – What makes TCP reliable?– TCP packet format - Persistent TCP connections – UDP – Differences between TCP and UDP.

Unit-II

DNS – E-mail – FTP – TFTP – History of WWW – Basics of WWW and Browsing – Web Browser Architecture - Remote Login (TELNET).

Unit-III

Introduction to Web Technology: Web pages – Tiers – Concept of a Tier – Comparison of Microsoft and Java Technologies – Web Pages – Static Web

Pages – Plug-ins – Frames –Forms. Dynamic Web Pages: Need – Magic of Dynamic Web Pages – Overview of Dynamic Web Page Technologies – Overview of DHTML – Common Gateway Interface – ASP – ASP Technology – Modern Trends in ASP –Java Servlets – Java Server Pages.

Unit-IV

Active Web Pages: Active Web Pages is a better solution – Java Applets – Why are Active Web Pages Powerful? – Lifecycle of Java Applets – ActiveX Controls – Java Beans. Middleware and Component-Based E-Commerce Architectures: CORBA – Java Remote Method Invocation – DCOM.

Unit-V

XML: SGML – Basics of XML – XML Parsers. WAP: Limitations of Mobile devices – Emergence of WAP – WAP Architecture– Concerns about WAP and its future – Alternatives to WAP.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Analyze a web page and identify its elements and attributes.	4
CO2:	Create web pages using DHTML and Cascading Styles sheets, create interactive web applications	10

Text Book:

1. Achyut S.Godbole & Atul Kahate,"WEB TECHNOLOGIES TCP/IP to Internet Application Architectures ",TMH, 2003.
(UNIT-I: chapter 3,4), (UNIT-II: chapter 5,6), (UNIT- III: chapter 8,9), (UNIT- IV: chapter 10.15), (UNIT-V: chapter 17,18)

Reference Book:

1. C.Xavier, "Web Technology and Design", 1st Edition, New Age International,2011.

ELECTIVE IV: Client / Server Technology

Semester: VI **Credits: 3**

Code: 18U6CAE11 **Hours: 4**

Objective:

- **To know the basic concepts in Client/Server technology**
- **Designing client/server systems, intranets, and extranets.**
- **To understand online transaction processing**
- **To know the client/server application development tools**

Unit-I

Basic concepts of Client/Server – Characteristics – File Servers – Database servers – Transaction servers- Groupware servers – Objective servers – Web servers – Fat servers or fat clients – 2 tier versus 3 tier – Client/Server building blocks – Operating system services. Base services – Extended services – Server scalability – Client Anatomy.

Unit-II

NOS Middleware – Peer-to-peer communications – RPC – MOM Middleware – MOM versus RPC - The fundamentals of SQL and relational databases – Server architecture – Stored procedures, triggers and rules.

Unit-III

Online transaction processing – Decision support systems – OLTP versus DSS: programming effort, database needs – Data warehouses – Elements - Hierarchies – Replication versus Direct access – Replication mechanism –

EIS/DSS Tools – Client/server transaction processing – transaction models – TP Monitors – Transaction management standards.

Unit-IV

Groupware – Components – Distributed objects and components – CORBA: components – Object Management Architecture – Services – Business objects.

Unit-V

Client/server Distributed system management – components – Management application – The Internet Management Protocols – OSI Management Framework – The Desktop Management Interface – X/Open Management Standards – Client/server application development tools – Client/Server Application Design.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand, and identify software and hardware development environment as client and server respectively.	4
CO2:	Understand, and determine database communication in client- server environment, Find, learn and use client-server based software development tool,	4
CO3:	Understand, and determine distributed file system architecture	3

Text Book:

1. Robert Orfali, Dan Harkey and Jeri Edwards, The Essential Client Server Survival Guide, 2nd edn. Galgotia

Reference Books:

1.Dawna Travis Dewire, Client/Server computing, Tata McGraw Hill.

2.Jafferey D. Schank, Novell‟s guide to Client/Server Application and Architecture, BPB Publications.

ELECTIVE IV: E-Commerce

Semester: VI **Credits: 3**

Code: 18U6CAE12 **Hours: 4**

Objective:

- **To acquire the knowledge of internet and intranet**
- **To know the concept of security issues and business process reengineering**
- **To understand legal issues.**

Unit – I

Electronic commerce: Electronic Commerce – Electronic Data Interchange – Value Added Networks - Electronic Commerce over the internet – Commerce Net. PCs and Networking: Networking – Communication Media. Electronic Mail: Computer communication system – ISO"s Open System Interconnection model – Electronic Mail – The X.400 message handling system – internet mail – Email security.

Unit – II

The Internet: Internet Communication Protocols- Internet Services and Resources – Internet Mail – Internet Search – Concerns about The Internet – Internet 2. Intranets: Intranet – Intra net Services – Intranet Implementation – The Webmaster. Electronic Data Interchange: Electronic Data Interchange – Costs and Benefits – Components of EDI Systems – EDI Implementation Issues – Legal Aspects.

Unit – III

The UN/EDIFACT Standard: Introduction – An EDIFACT Message – Interchange structure – UN/EDIFACT Message Directories. The Internet and Extranets for Electronic Commerce: E- Commerce – Commerce over the Internet – Commerce over Extranets. Identification and Tracking Tools for Electronic Commerce: The EAN System – EANCOM – Article Numbering – Bar Coding – The serial shipping container code and the EAN label – EAN Location Numbers. Internet Bandwidth and Technology Issues: Bandwidth Issues – Technology Issues for the Internet/NII – NII Standard – NII services – Actors in the NII- GII.

Unit – IV

Security Issues: Security Concerns – Security solutions – Electronic Cash over the Internet – Security and UN/EDIFACT Message – Internet Security. Business Process Reengineering: Introduction – Approach to BPR – Strategic Alignment Model – BPR Methodology.

Unit – V

Legal Issues: Legal Issues – Risks: Paper Documents Versus Electronic Document – Technology for Authenticating an Electronic Document – Laws for E-Commerce – EDI Interchange Agreement – Legal Issues for Internet Commerce. E-Commerce in India: EDI in India. The Internet in India – Laws for E-Commerce in India. Getting Started: Setting Up a Website – web Servers – Business – To- Business EC – Payment for Goods and Services – Bottlenecks.

Co. No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Explain the components and roles of the Electronic Commerce environment, explain how businesses sell products and services on the Web, describe the qualities of an effective Web business presence, describe E-Commerce payment systems.	8

Text Book:

1. Kamalesh K.Bajaj , Debjani Nag ,"E-Commerce The Cutting Edge of Business", TMH, New Delhi, 2000.

Reference Book:

1. David Whiteley, "E-Commerce Strategy Technologies and Applications", Tata Mc- Graw- Hill.

CORE-I:SBEC Lab- I: MS Office

Semester: II **Credits: 2**
Code: 18U2CASP01 **Hours: 3**

Ms Word

1. Text Manipulation – Change the Font Type and Style
   a. Prepare a Bio- Data
   b. Prepare a Letter
2. Usage of Numbering, Bullets, Headers and Footers
   a. Prepare a document in News paper Format
   b. Prepare a document in Brochure format
1. Tables and Manipulations – Creation, Insertion, Deletion
   a. Create a Mark sheet using Table

Ms Excel

2. Spread sheet using Formulas and functions
   a. SUM, AVERAGE, IF, COUNT, MIN, MAX,
3. Data sorting and Filtering
   a. Ascending , Descending
4. Creating Charts
   a. Pie Chart
   b. Bar chart

Ms Power Point

5. Inserting Clip and Pictures
   a. Create a slide show presentation for a seminar
6. Insertion of New Slides
   a. Prepare an Organization Chart
   b. Create a slide show presentation for an invitation
7. Usage of Design Templates
   a. Creation of a slideshow presentation to display mark sheet
   b. Creation of a slideshow presentation to display Percentage of students using Bar chart

Ms Access

1. Create an ACCESS database contains Students Information

SBEC LAB – II: Accounting Package

Semester: IV **Credits: 2**

Code: 18U4CASP02 **Hours: 3**

1. Company Creation, Alter the Company, Shut the Company
2. Group Creation, Ledger Creation
3. Vouchers – Payment, Sales, Purchases, Receipts
4. Bank Reconciliation Statement
5. Stock Group Creation – Stock Items.
6. Godown Creation
7. Contra Entry
8. Trial Balance, Profit and Loss Account and Balance sheet.
9. Tax Detected at Sources(TDS)
10. Service Tax.

SBEC Lab III: DTP

Semester: V **Credits: 2**

Code: 18U5CASP03 **Hours: 3**

PAGE MAKER:

1. Working with Text
   a. Multiple Text Block
   b. Formatting Text
   c. Making changes in the publication
2. Design a News Paper Publication
   a. Column Text
   b. Picture Insertion
   c. Advertisement
3. Managing and Printing
   a. Page Orientation
   b. Page number
   c. Table of Contents

PHOTOSHOP

4. Working with Images
   a. Image Effects (Blur, Black and White, contrast, brightness)
   b. Color Modes (CMYK, RGB etc)
5. Making Selections
   a. Moving a portion of Images
   b. Using Drawing Tools
   c. Using Retouching Tools
6. Working with Lasso- and Polygonal Lasso Selection Tools,
   a. Copy, Paste Into, Move Tool, Zoom Tool, Transform
   b. working with Paint Bucket Tool, Color Picker, Brush Tool

SBEC Lab IV: HTML and Web Design

Semester: VI **Credits: 2**

Code: 18U6CASP04 **Hours: 4**

1. Create a web page using text , marquee, character formatting tags.
2. Creating a web page using font ,heading tags.
3. Create web page using paragraph and BR tag.
4. Create web page using list tags of HTML
5. Create webpage to include image using HTML tag
6. Creating a web page using table tag.
7. Create web page using frames.
8. Create web page using forms.
9. Create a web page to display the courses offered using
   - <Img> tag
   - <A> tag
   - <Li> tag
10. Create a student registration form.

CORE-1: NMEC - I : Fundamentals of Information Technology

Semester: III **Credits: 2**

Code: 18U3CAN01 **Hours: 2**

Objectives:

- To learn basic of information technology
- To understand computer fundamental
- To learn the fundamental concepts in communication
- To understand topologies in network
- To understand the basics of Internet

Unit – I

Introduction to Information Technology: Information Technology – Understanding the Digital Domain – Representing Numbers and text in Binary- binary codes.

Unit – II

Fundamentals of Computers: Computer Hardware – Software – system software- application software- Translators- Computer languages-MLL-HLL-ALL.

Unit – III

Transmission of Information: Fundamentals of Communications – Fiber Optics – Wireless Communications –ISDN.

Unit – IV

Computer Networking: Goals – Topologies - Local Area Networks – Wide Area Networks – Communication Protocols.

Unit – V

Internet: Internet Architecture –- Types-Network Security-Internet applications- Internet address- domain name- E-mail.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Create well-designed programs.	5
CO2:	Demonstrate familiarity with elementary information systems concepts.	4
CO3:	Demonstrate familiarity with visual and event-driven programming concepts and techniques,	1,2
CO4:	Demonstrate familiarity with the basic concepts of object-oriented	1

Text Book:

1. Pelin Aksoy, Laura DeNardis ,"Introduction to Information Technology", Cengage Learning India Private Limited, First Indian Reprint 2008.

CORE-II: NMEC – I : Office Automation

Semester: III **Credits: 2**

Code: 18U3CAN02 **Hours: 2**

Objectives:

- To know about fundamentals of computers
- To learn about peripheral devices
- To learn MS Word, Excel and Powerpoint

Unit – I

Introduction to Computers – Five Generations of Modern Computers – Classification of Digital Computer Systems – Anatomy of a Digital Computer – Memory Units – Auxiliary Storage Devices.

Unit – II

Input Devices - Output Devices – Introduction to Computer Software – Operating Systems.

Unit - III

W**ord:** Introduction –Getting Started MS Word 2007 – Microsoft office Button-Quick Access Tool Bar –Working with Longer Documents- Page formatting- Macros.

Unit - IV

Excel: Introduction-Getting started with MS Excel – Spreadsheets-Microsoft office Button-Ribbon-Quick Access Toolbars-Creating a Workbook-Data-Modifying a Worksheet- Calculations-Relative, Absolute and Mixed References-Formatting Worksheet- Developing a Worksheet- Page properties and Printing.

Unit-V

PowerPoint: Introduction-Microsoft Power Point 2007- Getting started with Microsoft power point 2007 – Microsoft Office Button- Ribbon-Quick Access Tool bar –Customize- Creating a presentation- Slide Effects –Transition- Animation- Printing.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Describe Generations of Modern Computers, Classification of Digital Computer Systems, Auxiliary Storage Devices.	1
CO2:	Learnt about MS Office Products and how to identify the common Screen Elements and Finding Common Ways to Work.	4
CO3:	Describes Formatting a Word Document and Working with Longer Document.	5
CO4:	Learnt how to create Charts in Excel.	8
CO5:	Understand how to create and View Presentations and Presentation with Special Effects	10

Text Books:

1. Alexis Leon, Mathews Leon , “Introduction to Computers” , Vikas Publishing House Pvt. Ltd., (UNIT – I,II)
2. Sanjay Saxena, –“MS Office 2007 IN A NUTSHELL “,Vikas Publishing House Pvt.Ltd.. (Units- III, IV, V)

CORE-III: NMEC II : Photoshop

Semester: IV **Credits: 2**
Code: 18U4CAN03 **Hours: 2**

Objectives:

- To know about fundamentals concepts in Photoshop
- Able to edit images
- Explore file formats

Unit-I:

Adobe Photoshop CS4: Getting Familiar with Photoshop CS4: Introducing and Launching Photoshop CS4 - Exploring the New Interface-Working with commonly used Photoshop Tools-Getting Familiar with Palettes.

Unit-II:

Opening an Existing File or Photoshop Document-Creating a new document-Saving Files-Reverting Files-Closing Files-Getting Familiar with Different Workspaces-Selecting a Workspace-Saving and deleting workspace and Quitting the Application.

Unit-III:

Adobe Photoshop CS4: Working with image and Selections: Comparing Bitmap and Vector Images-Understanding Image Resolution-Editing Images-Making Color Adjustments.

UNIT-IV:

Exploring File Formats in Photoshop-Working with Selections Tools-Making a Selection Based on Color Range-Modifying a Selection .Drawing, Painting and Retouching Tools-Using Retouching Tools.

Unit-V:

Mastering Layers in Photoshop-Applying Blend Modes-Using Type Masking-Using Shape Masking.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Familiar with Photoshop	1
CO2:	Explore different work spaces in Photoshop	4
CO3:	To perform image editing	5
CO4:	Explore File Formats in Photoshop	8
CO5:	To perform masking	9

Text Book:

1. Vikas Gupta,"Comdex 9- in-1 DTP Course Kit",Dreamtech Press,New Delhi,2010.

CORE-IV: NMEC – II : Web Designing

Semester: IV **Credits: 2**
Code: 18U4CAN04 **Hours: 2**

Objectives:

- To understand the basics of Internet
- To learn Tags in HTML
- To understand lists in HTML
- To understand tables and frames in HTML

Unit-I:

Introduction: Web Basics: What is Internet – Web Browsers – What is Web page – **HTML Basics:** Understanding tags.

Unit -II:

Tags for Document structure (HTML, Head, and Body Tag), **Block level text elements:** Headings paragraph (<p> tag) – **Font style elements:** (bold, italic, font, small, strong, strike, big tags).

Unit- III:

Lists: Types of lists: Ordered, Unordered – Nesting Lists – **Other tags:** Marquee, HR, BR – Using Images – Creating Hyperlinks.

Unit -IV:

Tables: Creating basic Table, Table elements, Caption – Table and cell alignment – Rowspan, Colspan – Cell padding.

Unit -V:

Frames: Frameset – Targeted Links – No frame – **Forms:** Input, Text area, Select, Option.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand the basic concepts of Internet.	1
CO2:	Learnt tags in HTML	4

CO3:	Understand how to using lists and backgrounds	8
CO4:	Understand hyperlink, creating a table formation and forms	9
CO5:	Understand forms and frames in HTML	10

Text Book:

1. Dr.S.Aruna,"Hypertext Markup Language",Margham Publications-2017.

Reference Book:

1. C.Xavier , " World Wide Web Design with HTML", TMH, 2007
2. Faithe Wempen, "Microsoft Step by Step – HTML and XHTML", Prentice Hall of India Private Limited, New Delhi, 2006.

Allied Course -I

Programming

in C

Semester-III **Hours/Week: 5**

Code: 18U3CAA01 **Credit: 3**

Unit – I:

Overview of C: History of C – Importance of C – Basic structure of C programs. Constants, variables and data types: Character set – C Tokens – Keywords and identifiers – Constants – Variables – Declaration of storage classes – Assigning values to variables- Defining symbolic constants. Operators and expression – Evaluation of expressions – Precedence of arithmetic operators – Type conversions in expressions – Operator precedence and associatively – Mathematical functions. Managing input and output operations: Reading and writing a character – Formatted input and output.

Unit – II:

Decision making and branching: Simple IF, IF-ELSE, Nesting of IF-ELSE, ELSE-IF ladder, Switch statements – GOTO statements. Decision making and looping: WHILE statement – DO statement – FOR statement – Jumps in loops. Arrays: Definition & Declaration – One dimensional – Two dimensional – Multi dimensional arrays - Dynamic arrays.

Unit – III:

Character arrays and strings: Introduction – Declaring and initializing string variables – Reading strings from terminal – Writing strings to screen – String handling functions – Table of strings. User – Defined functions: Introduction – Need for user – Defined function – A Multi- function program – Elements of user – Defined function – Definition of functions – Return values and their

types – Function calls – Function declaration – All category of functions – Nesting of functions – Recursion – Passing arrays to functions – Passing strings to function.

Unit – IV:

Structures and Unions: Introduction – Defining a structure – Declaring structure variables – Accessing structure members – Structure initialization – Copying and comparing structure variables – Arrays of structures – Arrays within structures – Structures within structures – Structures and functions – Unions – Size of structures – Bit fields.

Unit – V

Pointers: Introduction – Understanding pointers – Accessing the address of a variable – Initializing of pointer variables. Chain of pointers – Pointer expressions –Pointers and arrays – Pointers and character strings – Arrays of pointers – Pointers as function arguments – Functions returning pointers – Pointers to functions – Pointer and structures.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Write the basic C programs with variables and arithmetic operators Understand the fundamentals of C program	8
CO2:	To develop conditional and iterative statements to write C programs	4
CO3:	To choose the loops and decision making statements to solve the problem	3,8
CO4:	Be able to write program to perform arrays on any dimensions,	5
CO5:	Understand different string handling functions to carryout string manipulations,	9
CO6:	To understand how to write and use multiple functions to return values**.**	9

Text Book

Programming in ANSI C, E. Balgurusamy Tata McGraw Hall, New Delhi, 4th Edition.

Allied Course -I

Allied Practical I -Programming in C

Semester-III **Hours/Week: 3**

Code: 18U3CAAP01 **Credit: 2**

C Programming List:

1) Write a program to find the Sum of N Natural Numbers
2) Write a program to calculate simple and compound interest
3) Write a program to perform Matrix manipulations
4) Write a program to sort N numbers in ascending and descending order
5) Write a program to print the Fibonacci series.
6) Write a program to find the factorial of a number using recursion.
7) Write a program to illustrate string handling functions
8) Write a program to find the occurrences of each character in the string.
9) Write a program using Structures with array elements

Allied Course -I

Programming in

Python

Semester-III **Hours/Week: 5**

Code: 18U3CAA02 **Credit: 3**

Unit -I

Introduction to Python: Introduction – Python Overview – Getting Started with Python – Comments – Python Identifiers – Reserved Keyword – Variables – Standard Data Types –

Unit- II

Operators – Statement and Expression – String Operation--Boolean Expression –Control Statement – Iteration – While Statement – Input from Keyboard.

Unit -III

Functions: Introduction – Built-in Functions – Composition of Functions – User Defined Functions – Parameters and Arguments - Function Calls – The return Statement – Python Recursive Functions – The Anonymous Functions – Writing Python Scripts.

Unit -IV

Strings and List: Strings – List. **Tuples and Dictionaries:** Tuples – Dictionaries. **Files and Exceptions:** Text Files – Directories – Exceptions – Exceptions with Arguments – User- defined Exceptions.

Unit-V

Classes and Objects: Overview of Object Oriented Programming – Class definition – Creating Objects – Objects as Arguments – Objects as Return values – Built-in Class Attributes – Inheritance – Method Overriding – Data Encapsulation – Data Hiding.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO-1	To know the basic concepts of python	1,2
CO-2	Understand different operators, expression and functions to carryout string manipulations,	4
CO-3	To write program in python	6
CO-4	Learnt how to use class inheritance in Python for reusability	8

Text Books

1. Kailash Vadera, Bhavyesh Gandhi, " Open Source Technology", University Science Press, 2013.

2. E. Balagurusamy, "Introduction to Computing and Problem Solving Using Python", McGraw Hill Education, 2018.

Reference Books

1. Mike McGrath, "Python in Easy Steps", McGraw Hill Education, 2017.

Allied Course -I

Allied Practical I- Programming in Python

Semester-III **Hours/Week: 3**

Code: 18U3CAAP02 **Credit: 2**

1. Write a program to compute simple interest.
2. Write a program to compute area of square and triangle.
3. Write a python program to check whether the year is leap year or not.
4. Write a simple program to display sum of all numbers from 1 to 10.
5. Write a python program to enter a string and print the length of the string using built-in function.
6. Write a python program to replace one string with the other string.
7. Write a python program to find the mean and median from a given list.
8. Write a python program to perform insertion sort on a given lists of strings.
9. Write a python program to perform bubble sort on a given lists of strings.
10. Write a python program to find Person is senior citizen or not, input age.

Allied Course -I

Visual

Programming

Semester-III **Hours/Week: 5**

Code: 18U3CAA03 **Credit: 3**

Objectives:

- **To familiar with the Visual Basic software**
- **To Understand about the Graphical User Interface Design**
- **To know the procedure of Database Connection through VB**

Unit – I:

What is Visual Basic – Features of VB – Developing an Application – Creating an Application: Objectives – The Tool Box – Project Explorer- The Properties Window – The Form Window- Understanding Projects – Forms and Controls: Objectives – The Form- The working with a Control – Opening the Code Window- Variables in VB – Data Types in VB

Unit –II:

Writing Code in VB – The Code Window – The Anatomy of Procedure – Editor Features – The For …Next Statement - The Decision Maker … If – Loop – DO.. While Loop – Select Case … End Select – Working with Files – VB File System Controls – Types of Files – Working with Files.

Unit – III:

Menus: Building the User Interface – All about Menus – MDI Applications - Why MDI Forms – Features of an MDI Form – Loading MDI Forms and Child Forms – The Active Form property – Debugging methods- Common Dialog Control - File open Dialog Box – Save Dialog Box – Changing the color -

Introduction to Databases – What is Database - Working with Data Control – The Data Control – The Bound Controls – Caution - Coding

Unit – IV:

DAO : The Jet Database Engine – Functions of the Jet Database Engine – SQL – The DAO Object Model - Additional Controls Available in VB 6.0 – SSTab Control – Activex Data Objects - Why ADO – Establishing a Reference.

Unit – V:

Crystal And Data Reports : Crystal Reports - Data Report – Distributing your Application - Working with the packaging and Deployment Wizard – Activex- What is Activex - Why Activex and Web Pages – Activex Documents- The Application Form Document - Sample Application in VB like Inventory Control.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Create well-designed programs, demonstrate familiarity with elementary information systems concepts.	4
CO2:	Demonstrate familiarity with visual and event-driven programming concepts and techniques.	5
CO3:	Demonstrate familiarity with the basic concepts of visual programming.	8
CO4:	Demonstrate familiarity with the tools and techniques for constructing attractive and useful user interfaces.	7
CO5:	Develop complete programs that solve intermediate problems dealing with various data types, elementary data structures, and objects.	9

TEXT BOOK:

Programming with Visual Basic 6.0 – Mohammed Azam – Vikas Publishing House (P)Ltd

Allied Course -I

Allied Practical I- Visual Programming

Semester-III **Hours/Week: 3**

Code: 18U3CAAP02 **Credit: 2**

VB Lab – List of Practical

11. Construction of an Arithmetic Calculator (Simple)
12. Working with List Box and Combo Box Control
13. Working with MDI Form
14. Working with Rich Text Box Control
15. Create an Animation Using picture box control
16. Working with Save Dialog Box
17. Preparation of Students Mark Sheet.
18. Personal Information System (Using Tables)
19. Library Information System (Using Tables).

Allied Course -

IV Programming

in C++

Semester-IV **Hours/Week: 5**

Code: 18U4CAA04 **Credit: 3**

Unit – I:

Object-Oriented Programming: Principles – Benefits of OOP – Application of OOP – Tokens, Expression and Control Structures: Tokens – Keywords – Identifiers and Constants – Data types – Constants – Variables – Operators – Manipulators – Expressions – Control Structure.

Unit – II:

Functions – Prototyping – Call by Reference – Return by Reference – Inline Functions – Default Arguments – const Arguments – Function Overloading – Friend and Virtual Functions, Classes and Objects – Class – Member Functions – Arrays with in a Class – Memory Allocation for Objects – Static data members – Static member functions – Arrays of Objects – Objects as Function Arguments – Friendly Functions – Returning Objects – const Member Functions – Pointers to Members, Constructors and Destructors

Unit – III:

Operator Overloading and Type Conversions, Inheritance: Extending Classes – Derived Classes – Single Inheritance – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes, Pointers.

Unit – IV

Virtual Functions and Polymorphism: Pointers – Pointers to Objects –this Pointer – Pointers to Derived Classes – Virtual Functions – Pure Virtual Functions Managing I/O Operations: C++ Streams – C++ Stream Classes – Unformatted I/O and Formatted I/O Operations – Managing Output with Manipulators.

Unit – V

Working with Files: Classes for File Stream Operations – Opening and Closing a File – Detecting end-of-file – File Pointers and Their Manipulators – Sequential I/O Operations – Updating a File – Error Handling during File Operations – Command Line Arguments. – Exception Handling: Basics - Exception Handling Mechanism – Throwing Mechanism – Catching Mechanism – Rethrowing an Exception – Specifying Exceptions.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To understand the basic elements of a simple C++ program.	1
CO2:	Able to write a program used by constructors and destructors.	9
CO3:	To understand the concept of extending classes through inheritance.	4
CO4:	To implement the concept of pointers, polymorphism and virtual functions in a C++ program.	5
CO5:	Exercise file concept using formatted and unformatted I/O operations.	9
CO6:	To understand the concept of class template and function template.	1
CO7:	To develop a C++ program using exception handling mechanism	8

Text Book:

"Object Oriented Programming with C++", 3rd Edition, E.Balagurusamy, Tate McGraw Hill Pub. Ltd., New Delhi

Allied Course -IV

Programming in

C++

Semester-IV **Hours/Week: 3**

Code: 18U4CAAP04 **Credit: 2**

List of Practical:

1) Write a Program using classes and objects
2) Write a program using i) Inline function ii) Friend function
3) Write a program arranging the numbers ascending and descending order
4) Write a program using different types of constructors
5) Write a program using destructors
6) Write a program using function overloading
7) Write a program using operator overloading
8) Write a program using different type of inheritance
9) Write a program to prepare student mark statement using files.
10) Write a program using exception handling.

Allied Course –IV

Computer Applications In Biology

Semester-IV **Hours/Week: 5**

Code: 18U4CAA05 **Credit: 3**

Unit -I

Introduction of computers: Introduction- Types of Computers-Characteristics of Computers. Generations of Computers-Classification of Computers-Programming Languages: Machine Language-Assembly Language - High-level languages. Input Devices – keyboard- Mouse-Types of mice – Connections-Mouse pad-Trackball-Joystick. Output devices - Dot Matrix Printer- Inkjet - Laser Printer -LCD & LED Printers-Line Printer. Auxiliary Storage Devices: Hard Disk – CD – DVD - Primary memory.

Unit- II

Overview of C: History of C – Importance of C-Basic structure of C programs. Constants, Variables and Data types: Character set - Keywords and identifiers-Constants- Variables-Declaration of storage classes. Operators and expression-Evaluation of expression - Type conversions in expressions-Operator precedence and associativity-Mathematical functions. Managing input and output operations: Reading and Writing a character-Formatted input and output.

Unit-III

Decision making and branching: Simple IF, IF-ELSE, Nesting of IF-ELSE, ELSE-IF ladder, Switch statements-GOTO statements. Decision making and looping: WHILE statement- DO statement-FOR statement – jumps in loop. Arrays: Definition & Declaration- One dimensional – Two dimensional-Multidimensional arrays-Dynamic arrays.

Unit-IV

Character arrays and strings: Introduction – Declaring and initializing string variables – User Defined functions: Definition of functions-Return values and their types-Function calls- Function declaration-All category of functions-Nesting of functions Structures and Unions: Introduction - Accessing structure members - Structure initialization - Arrays of structures - Arrays within structures – Unions.

Unit-V

Scope of bio informatics- Internet basic-biological data analysis and applications- sequences of data bases-applications of bio informatics.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand the basic concept of computer	8
CO2:	Write the basic C programs with variables and arithmetic operators, Understand the fundamentals of C program	4
CO3:	To choose the loops and decision making statements to solve the problem	3,8
CO4:	Be able to write program to perform arrays on any dimensions	5
CO5:	Understand different string handling functions to carryout string manipulations.	9

Text Books:

1. Alexis Leon & Mathews Leon, “Fundamentals of Computers Science and Communication Engineering”, Vikas Publishing House Pvt.Ltd, New Delhi. (UNIT- I)
2. E.Balagurusamy, “Programming in ANSI C”, Tata McGraw Hall, 4th edition, New Delhi. (Unit-II, III, IV).
3. V.Kothekar, “Introduction to Bioinformatics”, Dhruv publications, Delhi-2004. (UNIT – V)

Reference Book:

1. Byron S.Gottfried, Jitender Kumar Chhabra, “Programming with C”, Third edition, 2010.

Allied Practical-IV

Biostatistics and Computer Applications in Biology

Semester-IV **Hours/Week: 3**

Code:18U4CAAP05 **Credit: 2**

1. Write a C program to prepare the student mark list.
2. Write a C program to find the Mean, Standard deviation and Mean deviation for the given values.
3. Write a C program to print the multiplication table from 1 to 12.
4. Write a C program to calculate the correlation coefficients.
5. Write a C program to find the Regression coefficients and Regression lines.
6. Write a C program to calculate the Student‟s T test
7. Write a C program to perform chi-square test.
8. Write a C program to count the positive, negative & zero numbers from the given set of values.
9. Write a C program to find the occurrences of each character in the string & to concatenate two strings without using string library function.
10. Write a C program to find the factorial of a given number using functions.

Allied- :Internet and Computer Applications

Semester:IV **Credit:3**

Code: 18U4CAA06 **Hours:5**

Unit I

Introduction to Computers: Introduction – Types of Computers- Characteristics of Computers – Generation of Computers – Classification of digital Computers. Programming Languages: Machine Languages – Assembly level languages and high level languages.

Unit II

MS Word: Introduction to word – Menus – Formatting text and documents – Working with headers and footers, foot notes – Working with Tab - Creating Tables – Mail Merge.

Unit III

MS Excel: Introduction to Excel – Renaming worksheets – Formatting work sheets – Excel Chart Features – Working with Functions – Statistical – Math - Financial functions.

Unit IV

Power Point basics – Editing text – Deleting slides – Working in outline view – Using Design Templates – Adding Graphics – Adding organization Charts - Running Slide Show - Adding Special Effects.

Unit V

Introduction to Internet: Internet Concepts – E-mail - WWW Concepts – Web Browser – Search Engine – Internet chat – Internet Relay Chat (IRC), Chatting on the web.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understood Generations of Modern Computers, Classification of Digital Computer Systems, Auxiliary Storage Devices	8
CO2:	Learnt MS Office Products and how to how to use these	4
CO3:	Create Charts in Excel. Create presentation with special effects.	3,8

Text Books:

1. MS Office 2000 For Every One - Vikas Publishing House – Pvt Ltd., Sanjay Saxena.
2. Alexis Leon, Mathews Leon, “Fundamentals of Computer Science and Communication Engineering”

Allied- Practical VI - Internet and Computer Applications Semester: IV **Credit: 2**

Code: 18U4CAAP06 **Hours:3**

List of Practical

1. Creating Table in MSWORD
2. Formatting documents
3. Mail – Merge
4. Entering Data, changing font , changing row heights and column width, formatting the data, sorting the data.
5. Functions in Excel (ABS, SQRT, LEN, SUM, ROUND, AVG, COUNT)
6. Inserting Charts , Inserting Pictures
7. Creating Simple presentations – saving, opening an existing presentation- creating a presentation using Auto Content Wizard and Template
8. Slide View – Outline View, Slide View, Slide show View and Slide sorter View.

ALLIED PAPERS

ALLIED- I : NUMERICAL AND STATISTICAL METHODS

Semester: I **Credits: 4**

Code: 18U1MAA03 **Hours: 5**

NOTE: 80% of problem and 20% of theory (Theorems and proof are not expected)

UNIT I :

Algebraic and Transcendental Equations: Bisection Method – Iteration Method – The Method of False Position – Newton- Raphson – Method.

UNIT II :

Interpolation with equal intervals – Newton forward and backward formula - Central Difference Interpolation formula – Gauss forward and backward formula

UNIT III :

Statistics: Definition-Collection-Primary and Secondary Data-Measures of Central tendency-Mean –Median- Mode-Geometric mean-Harmonic Mean.

UNIT IV :

Correlation Coefficient : Scatter diagram method-Karl pearson method-Rank correlation coefficient– Linear regression – Method of least squares

UNIT V :

Distributions: Bionomial Distribution- -Poisson Distribution- Normal Distribution- Definition-Applications and properties. (Simple Problems only , No Derivations)

Text Books :

1. S.S. Sastry, Introductory Methods of Numerical Analysis, Prentice Hall of India, Pvt. Ltd., 1995.(For Units I, II).

2. R.S.N.Pillai and Bagavathi- Statistics Theory and Practice-S.Chand and Company LTD(2016)

Books For Reference:

1. S.Kalavathy, Numerical Methods, Vijay Nicole, Chennai, 2004.

2. Dr.Kandasamy, Numerical Methods, Sultan Chand, New Delhi

ALLIED II: PRINCIPLES OF DIGITAL ELECTRONICS

Semester: II **Credits: 3**

Code: 18U2ELA01 **Hours: 4**

UNIT – I

Number systems and Binary codes:

Introduction : Digital Electronics – Binary System – Decimal System – Octal – Hexadecimal – Binary arithmetic – BCD – Gray Code – Excess – 3 Code – ASCII Code – Conversion-1‟s and 2‟s Complement .

UNIT – II

Boolean algebra and logic gate:

Logic Gates – Universal gates – Basic Laws of Boolean Algebra – De Morgan‟s Theorems - Karnaugh map – Sum of product (SOP) – Product of Sum (POS).

UNIT – III

Combinational Logic : Half Adder – Full Adder – BCD Adder – Half Subtractor – Full Subtractor – Encoder – Decoder – Multiplexer – Demultiplexer.

UNIT – IV

Sequential Circuits: Flip Flops – RS Flip Flops – Data Latch or D Flip Flop – JK Flip Flop – T Flip Flop – Master Slave J K Flip Flop – Register – Shift registers.

UNIT – V

Counters: Asynchronous or Ripple Counter – Synchronous Counter – Ring Counter – Programmable Counter – Memory.

TEXT BOOK:

1. V.K.Puri, “Digital Electronics Circuit Systems”, TMH.

REFERENCE BOOKS:

1. Leach & Malvino, “Digital Principle and Application”, TMH.

ALLIED PRACTICAL – I: DIGITAL ELECTRONICS LAB

Semester: II **Credits: 2**

Code: 18U2ELAP01 **Hours: 3**

1. Verification of logic gates using IC'S
2. NAND / NOR as a universal gate
3. Verification of De Morgan‟s Theorem
4. Half and full adder
5. Half and Full Subtractor
6. Multiplexer and Demultiplexer
7. Encoder & Decoder
8. Study of flip flops - RS and D flip flop
9. Study of flip flops - JK and Master Slave and T flip flop
10. Shift registers

ALLIED III: PRINCIPLES OF ACCOUNTANCY

Semester: III **Credits: 4**

Code: 18U3CMA01 **Hours: 4**

Objectives:

- To enable the students to acquire basic knowledge of accounting principles, concepts and conventions.
- To make the students to acquire the skill to prepare the trial balance and final accounts.

UNIT - I

Specific Objective: To know about basic accounting concepts and methods of accounts.

Basic Concepts: Fundamentals of Book Keeping-Meaning-Definition-Book-keeping Vs. Accounting. Objectives- Advantages and limitations of accounting- Methods of accounting- Double entry system- Meaning-Advantages- Types of accounts- Accounting Rules-Accounting concepts and conventions.

Course outcome: To understand the fundamentals of accounting concepts and double entry system.

UNIT - II

Specific Objective: How to prepare journal entries, ledger and trial balance.

Journal- Ledger- Balance of ledger -Trial balance.

Course outcome: To make the student to prepare the journal entries, ledger and trial balance.

UNIT-III

Specific Objective: How to prepare trading account, profit &loss account and balance sheet for sole trading concern.

Final accounts of a sole trading concern- Trading, Profit & Loss a/c and Balance sheet with adjustments, Difference between Trading a/c- P&L a/c and Balance sheet.

Course outcome: to studied final accounts for sole trading concern.

UNIT - IV

Specific Objective: To enable the students to identification of errors, types of errors and how will rectification of errors.

Rectification of errors - Classification of errors - rectification in different stages of accounting cycle - basic principle of rectification of errors - Suspense account.

Course outcome: at the end of unit students can rectify the errors.

UNIT – V

Specific Objective: How to enter income and expenditure in receipts and payments account. Final accounts of Non- trading concerns- meaning and treatment- Difference between

Receipts and payments account& Income and expenditure account.(simple problems)- Receipts and payments account- Income and expenditure account and Balance Sheet.

Course outcome: students shall understand receipts and payments accounts for non trading concern.

Note: Distribution of marks - Problems 75% and Theory 25%.

Text Books:

1. Financial Accounting - Reddy and Murthy - Margham Publications, Chennai -17. (2012)
2. Financial accounting - R.L Gupta and V.K Gupta, Sultan chand& Sons, New Delhi. (2014)

Reference Books:

1. Financial accounting - S.P Jain & K.L Narang, Kalyani publishers, Ludhiana. (2018)
2. Financial Accounting - Dr. S Ganesan and Kalavathi ,Tirumalai Publications, Nagercoil.
3. Advanced Accounting I - Dr. Chandra Bose PHI Learning (P) Ltd., Delhi. (2010)

Allied II– DISCRETE MATHEMATICS

Second / Fourth Semester

(For B.Sc (CS)., BCA., B.Sc(IT) students admitted from the year 2018 –

2019 onwards) Course code: 18U2MAA04/18U4MAA04 Max Marks: 75

No. of Hours: 5 **Credits: 5**

Objectives:

An argument using logical notation and determine if the argument is or is not valid.

Unit-I

Course objectives:

Express a logic sentence in terms of predicates, quantifiers, and logical connectives

Mathematical Logic : Logical Statements - Propositional Calculus - The Negation - Conjunction - Disjunction - Tautologies - Logical Equivalence- The algebra of propositions- Problems.. Relation and Functions: Relation - Equivalence relation - Functions - Problems.

Course outcomes:

Write an argument using logical notation and determine if the argument is or is not valid.

UNIT - II

Course objectives:

Apply algorithms to problems including searching algorithms, base conversion algorithms, and the Euclidean algorithm.

Ordered sets and Lattices : Coset-Product Set and Order- Hasse Diagram of Partially Ordered Sets - Lattices-Lattices as Partially Ordered Sets - Lattices as Algebraic System - Sub Lattices - Product of two

Lattices - Complete, Complemented , Distributive, and Modular Lattices – Problems only.

Course outcomes:

Understand the basic principles of sets and operations in sets.

UNIT - III

Course objectives:

write proofs using symbolic logic and Boolean Algebra

Boolean Algebra and Switching Circuits : Introduction – Boolean Functions - Normal Form - Fundamental form of Boolean Functions - Applications to Switching Networks - Problems.

Course outcomes:

Demonstrate the ability to write and evaluate a proof or outline the basic structure of and give examples of each proof technique described.

UNIT - IV

Course objectives:

Perform basic matrix operations including sums, products, and transpose and perform 0- 1 matrix operations.

Matrices and Linear Equations – Rank - Cramer's rule-problems. Characteristic Roots and Vectors of a Matrix : Characteristic equation and roots- Cayley Hamilton Theorem – Characteristic - Vectors of a Matrix -Problems.

Course outcomes: write and evaluate a proof or outline the basic rules

UNIT - V

Course objectives:

Combinatorics : Introduction - Sum, Product rules Factorial - Permutations - Circular Permutations - Combinatorics - Value of nCr - Pigeonhole Principle - Problems.

Course outcomes:

Demonstrate an understanding of relations and functions and be able to determine their properties.

NOTE: 80% of problem and 20% of theory (Theorems and proof are not expected)

Text Book

1. B.S.Vatsa . Suchi Vastsa, Discrete Mathematics, New Age International Publishers, Fourth Revised edition

Reference Book

1. Prof.V.Sundaresan, K.S. Ganapathy Subramaniyam, K.Ganesan., Discrete Mathematics, Tata Me Graw Hill, New Delhi., 2000.
2. L.Lovarz, J.Pelikan, K.Vexztergombi.., Discrete Mathematics, Springer International Edition,2002

B.Sc., Electronics and Communication

Syllabus and Regulations

Under Choice Based Credit System

(Effect from 2018– 2019)

Vision

To impart a strong knowledge in the thrust areas of Electronics to make our students more employable.

Mission

To develop technical skills along with developing an integrated personality.,To develop a technocrat in Electronics.

Programme Outcomes (POs)

Students at the time of graduation will be able to

PO 1: Communicate Effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.

PO 2: Environment Concern - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

Syllabus and Credits

Selvamm Arts and Science College (Autonomous),Namakkal
Department of Eelectronics & Communication
B.Sc Electronics & Communication

Sem	Part	Sub.code	Subject title	Hrs / wk	Credits	Int. Mark	Ext. Mark	Total
Semester-I								
I	I	18U1FTA01	Tamil-I	5	4	25	75	100
	II	18U1FEN01	English-I	5	4	25	75	100
	III	18U1EL01	Core-I Electric Circuits	6	5	25	75	100
		18U1MAA01	Allied-I Mathematics-I	6	4	25	75	100
		18U1ELP01	Core Practical-I Electric Circuits Lab	3	2	40	60	100
		18U1ELP02	Core Practical-II workshop practice-I	3	2	40	60	100
	IV	18U1VE01	Yoga and Practice	2	1	25	75	100
			Total Hr/Cr	**30**	**22**			**700**
Semester-II								
II	I	18U2FTA02	Tamil-II	5	4	25	75	100
	II	18U2FEN02	English-II	5	4	25	75	100
	III	18U2EL02	Core-II physics of materials and semiconductor devices	6	5	25	75	100
		18U2MAA02	Allied-II Mathematics-II	6	4	25	75	100
		18U2ELP03	Core Practical-III Semiconductor Devices Lab	3	2	40	60	100

		18U2ELP04	Core Practical-IV Workshop Practice-Ii	3	2	40	60	100
	IV	18U2VE02	Values for Life	1	1	25	75	100
		18U2ES01	Environmental Science	1	1	25	75	100
			Total Hr/Cr	**30**	**23**			**800**
Semester-III								
III	I	18U3FTA03	Tamil-III	5	4	25	75	100
	II	18U3FEN03	English-III	5	4	25	75	100
	III	18U3EL03	Core-III Electronic Circuits	6	6	25	75	100
		18U3CSA01	Allied-III Programming In C	6	3	25	75	100
		18U3ELP05	Core Practical-V Electronic Circuits Lab	3	2	40	60	100
		18U3CSAP01	Allied Practical-I C Programming Lab	3	1	40	60	100
	IV		NMEC-I Personality Development And Soft Skills	2	2	25	75	100
			Total Hr/Cr	**30**	**22**			**700**
Semester-IV								
IV	I	18U4FTA04	Tamil-IV	5	4	25	75	100
	II	18U4FEN04	English-IV	5	4	25	75	100
	III	18U4EL04	Core-IV Digital Electronics	6	6	25	75	100
		18U4CSA02	Allied-IV	6	3	25	75	100

			Programming In C++					
		18U4ELP06	Core Practical-V Digital Electronics Lab	3	2	40	60	100
		18U4CSAP02	Allied Practical-IV C++ Programming Lab	3	1	40	60	100
IV	IV		NMEC-II	2	2	25	75	100
			Total Hr/Cr	**30**	**22**			**700**
Semester-V								
V	III	18U5EL05	Core-V Linear Integrated Circuits and It's Applications	6	5	25	75	100
		18U5EL06	Core-VI Microprocessor and It's Interfacing	5	4	25	75	100
		18U5EL07	Core-VII Principles of Communication	5	4	25	75	100
		18U5ELE01	Core Elective-I Computer Architecture and Organization	6	5	25	75	100
		18U5ELE02	(Or) Core Elective-II PC Hardware And Maintenance					
		18U5ELP07	Core Practical-VII Linear Integrated Circuits and It's Applications Lab	3	2	40	60	100
		18U5ELP08	Core Practical-VIII Microprocessor and Interfacing Lab	3	2	40	60	100

	IV	18U5ELS01	SBEC-I TV and Satellite Communication Systems	2	2	25	75	100
			Total Hr/Cr	**30**	**24**			**700**
Semester-VI								
VI	III	18U6EL08	Core-VIII Network Communication	5	4	25	75	100
		18U6EL09	Core-IX Embedded System	5	4	25	75	100
		18U6ELE03 18U6ELE04	Core Elective-III Medical Electronics (Or) Core Elective-IV Mobile Communication	4	4	25	75	100
		18U6ELE05 18U6ELE06	Core Elective-V VLSI Systems and Tools (Or) Core Elective-VI Digital Signal Processing	4	4	25	75	100
		18U6ELP09	Core Practical-IX Communication Electronics Lab	3	2	40	60	100
		18U6ELP10	Core Practical-X Embedded System Lab	3	2	40	60	100
		18U6ELPR01	Project and Viva Voce	2	2	40	60	100

	IV	18U6ELS02	SBEC-II Power Electronics	2	2	25	75	100
		18U6STE01	Skills Through English(LSRW)	2	1	25	75	100
			Extension Service*		2			
			Total Hr/Cr	**30**	**27**			**800**
			Total hrs/credits	**180**	**140**			**4400**

NMEC Papers:

Semester-III&IV

S.NO.	**SUB. CODE**	**SUBJECT TITLE**	**HRS/ WK**	**CREDITS**
1	18U3ELN01/ 18U4ELN01	NMEC-I Cellular Phone Servicing	2	2
2	18U3ELN02/ 18U4ELN02	NMEC-II Biomedical Instrumentation	2	2
3	18U3ELN03/ 18U4ELN03	NMEC-III PC Hardware Maintenance And Networking	2	2

Program Specific Outcomes (PSOs)

PSO-1	Critical and analytical thinking skills
PSO-2	Problem solving skills
PSO-3	Designing skills
PSO-4	Knowledge on basic electronic components and circuits
PSO-5	Analyze the techniques used to find the output of the desired electronic circuit.
PSO-6	Understand the basic knowledge of semiconductor devices and characteristics
PSO-7	Understand the IC characteristics and Schematics
PSO-8	Applying the Assembly language program to describe the process and architecture of the Peripheral devices. And Memory organization.
PSO-9	Get accurate solution for the communicating devices and Equipments.
PSO-10	Acquire the desire destination of the medical relevant instruments.

Semester-I

Electric Circuits

Paper Code: 18U1EL01 **Hrs: 6/Cr: 5**

Objective:

- ✓ To learn the methods to simplify any electrical networks and to analyze the performance of complex networks.

Unit – I DC Circuit Analysis

Voltage – Current - Power and Energy – Resistance Parameter - Capacitance Parameter - Inductance Parameter – Energy Sources – Colour Coding of Resistor - Different types of Resistors, Capacitors and Inductors – Ohm's law – Resistors in Series and Parallel – Series Parallel Combinations – Star to Delta and Delta to Star transformations.

Unit – II AC Circuit Analysis

Sinusoidal and Non-sinusoidal Waveforms: Instantaneous Value-Peak Value-Peak-to-Peak Value-RMS Value-Average Value- AC Circuit Power Analysis: Average Power – Reactive power- Apparent Power - Power factor – Power triangle involving.

Unit – III Network Theorems

KCL and KVL - Superposition theorem – Thevenin's and Norton's theorem – Reciprocity Theorem – Maximum Power Transfer Theorem – Millman's theorem-Compensation Theorem – Tellegen's theorem.

Unit – IV: Transients

Steady state and Transient response – DC response of an RL circuit – DC response of an RC circuit – DC response of an RLC circuit – Sinusoidal response of RL, RC- Sinusoidal response of RLC circuit.

Unit –V: Coupled Circuits:

Magnetically coupled circuits: Self Inductance – Mutual inductance – Coefficient of coupling – Dot convention rule – Series connections of coupled Inductors - parallel connections of coupled coils – Ideal transformer.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Analysis the DC circuits, Combination of transformation	1
CO-2	Analysis the AC circuits and its values	4
CO-3	Understand the basic network theorems	2
CO-4	Learnt the response of basic RLC Combinational Circuits	4
CO-5	Learnt the connection of coupled circuits using inductance	5

Book for study:

1. William H. Hayt, Jr, Jack E. Kemmerly, Steven M. Durbin, "Engineering Circuit Analysis", 6th Edition, Tata McGraw – Hill publishing company Ltd, 2008.(UNIT-I)
2. B.L.Theraja- "Basic Electronics Sold State".(UNIT-II)
3. A. Sudhakar, Shyammohan S Palli, "Circuits & Networks Analysis and Synthesis", 3rd Edition, Tata McGraw – Hill publishing company Ltd, 2008. (UNIT-II,III,IV,V)

Books for Reference

1.Dr.M.Arumugam,N.Preamkumaran-"Electric Circuit Theory" Khanna Publishers,Delhi-6.

2. Basic Electronics by Grob

Semester-II

Physics of Materials and Semiconductor Devices

Paper Code: 18U2EL02 **Hrs: 6/Cr:5**

Objective:

- ✓ To learn the principle and working of the semiconductor devices and it's characteristics.

Unit-I Atomic Structure & Energy Band's:

Introduction to Electronics-Atomic structure-Structure of elements-The electron-Energy of an electron-Valence electrons-Free electrons-Bohr's atomic model-Energy levels-Energy bands-Important energy bands in solids-Classification of solids and energy bands

Unit-II Semiconductor Theory And Junction Diode

Bonds in Semiconductors-Energy Band Description of Semiconductors-Hole Current-Intrinsic Semiconductor-Extrinsic Semiconductor- N-Type Semiconductor- P-Type Semiconductor-Majority and Minority Carriers-PN Junction- Properties of PN Junction - Applying Voltage Across PN Junction-Current Flow in Forward Biased and Reverse bias of PN Junction – V I characteristics of PN Junction- Resistances of a Diode - Equivalent Circuits.

Unit- III Special Purpose Diodes

Zener Diode-Equivalent Circuits-Zener diode as voltage regulator - Light Emitting Diode -Multi Color LED's - Advantages and Applications of LED – construction, working principle and characteristics of :Tunnel diode- Varactor diode - Shockley diode – Photodiode - LDR.

Unit-IV Transistor and Biasing

Fundamentals of Transistor - Transistor Action- - Transistor Connections- Common Base Connection- Characteristics-Common Emitter Connection Characteristics-Common Collector Connection-Cut-Off and Saturation-Power Rating-Transistor as an Amplifier-Transistor as a switch-Base Resistor Biasing - Voltage Divider Biasing- Load line analysis.

Unit-V Field Effect Transistors

Junction Field Effect Transistor- Working Principles of JFET- Schematic symbol of JFET- Difference Between JFET and BJT- Characteristics of JFET-Parameters of JFET- Resistance variance of JFET-JFET Biasing- JFET Connections- JFET as an Amplifier-MOSFET-Working Principle of MOSFET.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Understand the basic Knowledge of Electronics, Electrons and its structure.	1
CO-2	Analysis the type or category of semiconductor devices	6
CO-3	Learnt the various type of diodes and its construction working principles and Characteristics	2
CO-4	Understand the transistor action and various connections of transistors	5
CO-5	Learnt the various type of FET and its construction working principles and Characteristics	3

Book for study:

1. Principles of electronics, by v. K. Metha & rohit metha
   (Unit – I ,II,III,IV,V)
2. A text book of applied electronics – R.S.Setha , S. Chand

Semester-III

Electronic Circuits

Paper Code: 18U3EL03 **Hrs:6/Cr: 6**

Objective:

- ✓ To learn the working principles of Rectifiers, Voltage regulators, Amplifiers and Oscillator circuits.

Unit – I: Rectifiers

Half Wave Rectifiers - Full Wave Rectifiers - Bridge Rectifiers -Average Value & RMS Value - Ripple Factor & Efficiency - Filters. Voltage Regulator - Types Of Voltage Regulator - Clipping and Clamping.

Unit – II: Amplifiers

Single Stage Amplifier - RC Coupled Amplifier - Gain & Frequency Response of RC Coupled Amplifier – Direct coupled Amplifier-Voltage gain of Direct coupled Amplifier- Frequency Response of Direct coupled Amplifier.

Unit – III: Power Amplifier

Introduction - Classification of Power Amplifier - Class 'A' Amplifier - Class 'B' Amplifier - Class 'C' Amplifier - Maximum Collector Efficiency Of Class 'A' Amplifier - Class 'B' Push Pull Amplifier - Cross Over Distortion.

Unit – IV: Feedback Amplifier

Introduction of Feedback Amplifier - Positive Feedback Amplifier - Negative Feedback Amplifier -Band Width and Distortion - Noise- Voltage Series Feedback Amplifier - Voltage Shunt Feedback Amplifier – Current Series Feedback Amplifier - Current Shunt Feedback Amplifier.

Unit – V: Oscillators & Multi Vibrators:

Hartley Oscillator - Colpits Oscillators - Phase Shift Oscillators - Wien Bridge Oscillator- Crystal Oscillator. Multivibrators: Astable Multivibrator - Monostable Multivibrator - Bistable Multivibrators – Schmitt trigger circuit.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Analysis the working principles of rectifier and various voltage regulator	1
CO-2	Understand the several stages of amplifier and its frequency response	5
CO-3	Learnt the classification power amplifier with maximum collector efficiency	2
CO-4	Understand the feedback amplifier of various amplifier	4
CO-5	Learnt the working and characteristics of oscillators and multivibrators	6

Text Books:

1. R.S. Sedha. “Applied Electronics”, 1st Edition,2004
2. Salivahanan. S, Suresh Kumar .N, Vallavaraj. A, “Electronic Devices and Circuits”, 2nd Edition, TMH, 2008.

Books for Reference

1. David A. Bell, “Electronic devices and circuits”, Prentice Hall of India, 2004.

2. Floyd, “Electron devices”, Pearson Asia, 5th Edition, 2001.

Semester-IV

Digital Electronics

Paper Code: 18U4EL04 **Hrs: 5/Cr: 6**

Objective:

- ✓ To learn the basic function of Number system and logic gates.
- ✓ To learn the design procedure of Sequential and Combinational logic circuits.
- ✓ To learn the basic function of A/D and D/A Converters.

Unit – I: Number System and Codes

Decimal, Binary, Octal and Hexa Decimal numbers – Number system conversions – Binary addition, Subtraction– 1's and 2's compliments. Binary Coded Decimal (BCD) – Weighted Codes and Non-Weighted Codes – Excess 3 – Gray code – Error Detection and correction Codes –ASCII Codes.

Unit - II: Boolean algebra and Logic Gates

Boolean Logic Operations – Boolean Functions & laws – Demorgon's Theorem – Sum of Products and Products of Sum – Karnaugh- map – Logic gates – OR, AND, NOT, NAND, NOR, EX-OR and EX-NOR Gates.

Unit - III: Combinational Logic Circuits

Half adder – Full adder – Half subtractor – Full subtractor – Parallel binary adder – 4 bit binary adder / subtractor – BCD adder – Multiplexer – Demultiplexer – Decoders – Encoders – Parity generator / checker .

Unit – IV: Sequential Logic Circuits

Flip Flops – RS, JK, JK Master Slave, D and T Flip Flops – Shift Registers and its types – Ring counters – Ripple counters – Synchronous counter – Up / down counter – Mod-3, Mod-5 counters – Decade counter.

Unit – V: D/A and A/D Converters

Digital to Analog converters: Accuracy and Resolution -Resistive divider type and Ladder type –. Analog to Digital converters: Counter – Ramp type – Simultaneous conversion – Dual Slope Type – Successive approximation type.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Ability to understand digital signals and number systems	4
CO-2	Ability to understand the operations of basic and universal logic gates	7
CO-3	Analysis the function of combinational logic circuits with parity checker	3
CO-4	Ability to acquire knowledge on sequential and combinational logic circuits	5
CO-5	Understand the basic concept of converters	1

Text books:

1. V.K.Puri,"Digital Electronics", Tata McGraw Hill Edition V, 2004.
2. Malvino & Leech, "Digital Principles And Applications", Tata McGraw Hill Edition V, 2002.

Reference book:

1. M.Morris Mano "Digital Design" PHI 2005.

Semester-V

Linear Integrated Circuits and its Applications

Paper Code: 18U5EL05 **Hrs: 6/Cr: 5**

Objective:

- ✓ To learn the principles of operations and applications of Operational amplifier.
- ✓ To Understand the IC fabrication, Design circuits using ICs and Gain knowledge about electronic instruments.

Unit – I

Integrated circuit fabrication: introduction & fundamentals of monolithic IC technology – basic planar processes – fabrication of a circuit – active & passive components & ICs – diodes – resistors – capacitors – monolithic transistors – fabrication of FET, thin & thick film technology.

Unit - II

Digital IC families: RTL, DTL, (modified integrated circuits) – HTL, TTL, ECL, logic families – characteristics – I^2L (TSL). CMOS devices driving TLL circuits, TTL device driving CMOS gates.

Unit - III

Operational amplifier : Operational amplifier – Ideal operational amplifier – operational amplifier parameters – Inverting amplifier – Non Inverting amplifier – applications – Subtraction - Integration – Differentiation amplifier – Instrumentation amplifier multiplier – Divider - Electronic analog computation.

Unit - IV

Non linear & analog system: comparator – Sample & Hold circuit , log and antilog amplifiers, AC amplifier, V to I to V converter – Regenerative comparator (Schmitt triggers) Astable multivibrator – Monostable multivibrator triangular wave generator – Sine wave generator.

Unit –V

PLL and timers : Basic principles – Phase detector – Comparator - Voltage Controlled Oscillator – Phase Locked Loop – PLL applications – Frequency multiplication - division - Frequency translation – 555 timer – Astable – Monostable multivibrator.

Course outcomes (COs)

CO No.	**Upon completion of this course, students will be able to**	**PSOs addressed**
CO-1	Ability to understand different IC fabrication techniques.	1
CO-2	Understand the IC's of digital families	7
CO-3	Will be able to acquire knowledge on Op-amp and its characteristics.	6
CO-4	Understand the non linear and analog systems.	3
CO-5	Learnt the application of PLL and Timers Ability to understand functional blocks of IC555	2

Text books:

1. Botkar K.R – Integrated circuits – khanna publishers, New Delhi (Unit 1).

2. D. Roy Chouchury sahil jain – linear integrated circuits – (Unit II,III,IV,V)

Reference book:

1. Ramakant, A.gayakwood – Op – amps & linear integrated circuits – PHI

Semester-V

Microprocessor and It's Interfacing

Paper Code: 18U5EL06 **Hrs:5/Cr:4**

Objective:

- ✓ To acquire the knowledge about microcontrollers/ processors and programming for various applications

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Unit – I Architecture of Intel 8085

Introduction to Microprocessor-Architecture of 8085 – Pin description and functions – Instruction and Data flow – Machine cycle – Timing diagram for op-code fetch cycle, memory, I/O Read and write cycles –Interrupt structure and its operation.

Unit – II Assembly Programming With 8085

8085 addressing modes – Instruction set classification and format –Stack and subroutine – Assembly language programming.

Unit – III Intel 8086 Architecture

Intel 8086 architecture – Pin description and function overview –Minimal & maximum mode – Bus activities during read/write operation –Interrupts structure and its operation.

Unit – IV Intel 8086 Programming and Advanced Processors

Instruction set – Addressing modes – Assembly level language programming (ALP) – Comparative study of 286, 386,486 & Pentium processors – Memory Protection and Virtual Memory Concepts.

Unit – V Peripheral Interfaces

Address space partitioning – Memory and I/O interfacing – PPI 8255– UART 8251 –8253 Timer – 8259 interrupt controller – 8237 programmable DMA – 8279 keyboard and display interface controller – Applications Stepper motor and traffic controller using 8085 microprocessor

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Ability to acquire knowledge on architecture of 8085 microprocessor	1
CO-2	Ability to understand the 8085 instruction set and memory mapping concepts.	3
CO-3	Ability to understand architecture of 8086 microprocessor	4
CO-4	Will be able to understand the instruction set of 8086 to develop assembly language programs.	5
CO-5	Will be able to acquire knowledge on interfacing different peripheral devices with 8086.	8

Book for Study

1. Ram.B, “Fundamentals of microprocessor and microcomputers”, 4thEdition, Dhanpat Rai & Sons.
2. Douglas V. HALL, “Microprocessor and Interfacing”, 2nd Edition.
3. Barry B. Brey, “The Intel Microprocessors”, 8th Edition,Imprint of Pearson.

Book for Reference

1. Ramesh Goankar, “Microprocessors and its Application”, 3rd Edition.

Semester-V

Principles of Communication

Paper Code: 18U5EL07 **Hrs:5/Cr: 4**

Objective:

- ✓ To learn the various analog modulation techniques
- ✓ To get expertise on digital communication system based on digital modulation and error coding techniques

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Unit-I: Introduction to Communication System

Information-Transmitter - Channel Noise – Receiver Description - Need for Modulation - Sine Wave and Fourier series Review - Frequency Spectra of Non Sinusoidal Waves.

Unit-II: Amplitude Modulation

Frequency Spectrum of the AM Wave - Representation of AM Wave – Power Relation in the AM Wave - Gird Modulation Class C Amplifier - Plate Modulated class C Amplifier - Modulated Transmitted Amplifiers.

Unit-III: Frequency Modulation

Description of Systems - Mathematical Representation of FM – Frequency Spectrum of the FM Wave – Phase Modulation - Intersystem Comparisons –Effects of Noise on Carrier - Noise Triangle - Pre-emphasis and De-emphasis - Comparison of Wideband and Narrowband FM

Unit-IV :Antennas

Electromagnetic Radiations - General Consideration - Selection of Feed Point - Antenna couplers - Impedance Matching with Stubs and other devices - Dipole Arrays - Folded Dipole and Application - Non Resonant Antennas the Rhombic -Antennas with Parabolic Reflectors - Horn Antennas - Lens Antennas.

Unit-V: Pulse Communication

Introduction of Pulse Communication – Pulse System: Types of Pulse Communication – Pulse Width Modulation – Pulse Position Modulation –Pulse Code Modulation- Delta Modulation – Slope Over Loading –ADM.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Ability to understand the basics of analog communication systems	1
CO-2	Acquire knowledge on AM transmitter and receiver functions	4
CO-3	Ability to understand FM transmitter and receiver functions	6
CO-4	Analyze radiation patterns of antennas.	5
CO-5	Understand the basics of information theory, source coding techniques and calculate Entropy of source	9

Books for study:

1. Kennedy and George Davis-"Electronic communication systems"-4th ed., 1999.

Books for reference:

1. R.P.Singh and S.D.Sapre-"Communication systems-Analog and digital"-Tata McGraw Hill, 1995.

2. Anokh Singh-"Principles of communication engineering"-Scand and Co., Ltd.

Semester – VI

Network Communication

Paper Code: 18U6EL08 **Hrs: 5/Cr: 4**

Objective:

- ✓ To get expertise on Network communication system
- ✓ To study about of Data communication networks.

Unit- I:

Introduction - Standards: Data communication – Network – the internet – protocol & Transmission mode –Multiplexing-demultipiexing.

Unit- II:

Topology: Mesh – Star – Tree – Ring – Bus – Hybrid – Basic of Switching – Router – Internet –interanet- Architecture of an ISP.

Unit- III:

OSI Model – Physical Layer – Data Link Layer – Network Layer – Transport Layer – Session Layer – Presentation Layer – Application Layer.

Unit- IV:

OSI And Internetworking: Bridges and Gateways - Multiple Access networks – Electronic Mail – ISDN – Fiber optic and Packet Radio Network – Introduction to LAN – MAN - WAN- 1G , 2G , 3G , 4G

Unit- V:

Transmission media – propagation of Radio Waves – Terrestrial Microwave – Satellite Communication – cellular telephony – Satellite Network: Orbits – GEO – MEO – LEO - Satellite

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To Perform basic configurations on routers and Ethernet switches	1
CO-2	TO Design a small or medium sized computer network including media types, end devices, and interconnecting devices that meets a customer's specific needs.	3
CO-3	Able to differentiate among and discuss the four levels of addresses (physical, logical, port, and specific used by the Internet TCP/IP protocols.	6
CO-4	Have an understanding of the issues surrounding Mobile and Wireless Networks	9
CO-5	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies	5

Text Books:

1. Behrouz A. Forouzan, "Data Communication and networking", Tata Mc - Graw Hill,

2004.

2. Pallapa Venkataramani and S.S.Manvi, "Communication Protocol Engineering", PHI, 2004

Semester-VI

Embedded System

Paper Code: 18U6EL09 **Hrs:5/Cr: 4**

Objective:

- ✓ To acquire the knowledge about microcontrollers and programming for various applications

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Unit -I:

Microcontrollers Architecture and Pin Functions

Pin description of 8051, Architecture of 8051, I/O- Pin designations and Programming, Bit manipulations, Program counter and RAM, FLAGS & PSW register, Register Bank and Stack, Assembly programming, Assembling and Running a program, Data types and Directives.

Unit -II:

Addressing Modes, Instruction Set and Timer

Addressing modes-instruction set -.Single bit instructions and programming- Timer - Modes of timer - time delay using timer- 8051 Timer programming-application of timer-counter programming-counter applications.

Unit -III:

Interrupts and Serial Communication

Interrupts in 8051- priorities- programming external interrupts- 8051 Serial communications- RS232 Interface- Modes of serial communication-serial programming.

Unit -IV:

Microcontroller Real World Application

Concepts of emulator and simulator- Interfacing an LCD, Interfacing to ADC ,-Interfacing to Keyboard,-Interfacing to DAC -Interfacing Stepper motor-Temperature monitor system.

Unit – V:

Introduction to PIC Microcontroller

The PIC microcontroller family – PIC 16F84 – Pin description – block diagram – architecture – I/O ports – instruction format – addressing modes – watchdog timer.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Will be able to acquire the knowledge on architecture of 8051 microcontroller	1
CO-2	Ability to understand the instruction set and addressing modes 8051 microcontroller	3
CO-3	Will be able to acquire knowledge on on-chip peripherals of 8051	8
CO-4	To Design microcontroller based system for various applications	2
CO-5	Analyze the PIC Microcontroller	5

Books for Study

1. Muhammad Ali Mazidi,Janice Gillspie Mazidi: The 8051 Microcontroller and

   Embedded systems (7th Indian reprint, 2002) (Pearson Education).

2. Microchip technology PIC microcontroller datasheet.

Books for Reference

1. Kenneth J Ayala: The 8051 Micro controller Architecture, Programming & Applications (2nd edition)

Semester-V

Computer Architecture and Organization

Paper Code: 18U5ELE01 **Hrs:6/Cr: 5**

Objective:

- ✓ To learn the basics of network connections and its protocols

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Unit I: Modern Computer Organization

Introduction – Layers in modern computer - Computer organization – Main Memory – CPU Operation – Computer types – System performance and measurement – High performance techniques – Booting sequence – Computer design process – Computer structure – Computer Function – Architecture and Organization – CISC Vs RISC

Unit II: Processor Design and Data Path

Introduction – Processor role – Processor design goals – Processor design process – Data path organization – Main memory interface – Local storage register file – Data path simple instructions

Unit III: Memory Design and Management

Introduction – Memory parameters – Classification of memory – Memory Technology – Main memory allocation – Static RAM IC – Dynamic RAM – ROM logic – Multiple memory decoding – Memory Hierarchy – Main memory drawbacks –Cache memory – Principle of cache – Virtual memory Concept – Advantage of Virtual memory

Unit IV: Computer Peripherals

Introduction – Keyboard – CRT display monitor – Printer – Magnetic storage devices – Floppy disk drive – Hard disk drive – Special types of disk

drives – Mouse and Track ball – Modem – CD-ROM Drive – Scanner – Digital Camera – DVD – Special peripherals

Unit V: Advanced System Architecture

Introduction – High performance computer architecture – RISC systems – Superscalar architecture – VLIW architecture – EPIC architecture – Multiprocessor Systems

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Ability to understand basic structure of computer.	3
CO-2	Ability to perform computer arithmetic operations	8
CO-3	Ability to understand control unit operations	5
CO-4	Ability to design memory organization that uses banks for different word size operations.	7
CO-5	Ability to understand the concept of cache mapping techniques. Ability to understand the concept of I/O organization. Ability to conceptualize instruction level parallelism.	9

Text Book:

1. Govindarajalu.B "Computer Architecture and Organization Design Principles and Applications" Tata McGraw-Hill, 2006
2. Morris Mano "Computer Architecture" Tata Mac Graw Hills, 2006

Semester V

PC Hardware and Maintenance

Paper Code: 18U5ELE02 **Hrs: 6/Cr: 5**

Objective:

- ✓ To develop the skill of assembling and maintaining the personal computer.

Unit – I: Personal Computers and Processors

History of the PC-System Types-Data I/O Bus –Pin Address Bus-Internal Register-Processor modes-Processor Speed Rating.

Unit - II: Moth Board and BIOS

PC and XT-Full size AT-ATX-Processor Sockets-Intel Chipsets-AMD Chipsets-Intel Register-Mother Board Connectors-At and ATX Power Supply Connectors.

Unit - III: Memories

ROM-DRAM-Caches memory-SDRAM-DDR SDRAM-Hard Disk Definition-Hard Disk Dive-Operations and Components. Removable Storage – Floppy Disk-Flash memory Devices-CD Based Optical Technology-DVD Construction and Technology-Blur ray disk

Unit – IV: Peripherals

ATA standards-Parallel ATA-LCD Panels-CRT Display-VGA Standards-Audio Adapter-Serial Port Configuration –Parallel Port Configuration-104 Keyboard-Pointing Devices-USB Technical Details-USB Adapter.

Unit – V: Internet and Networking

Internet and LAN Connectivity-Company Broadband and Dialup modem-Broadband Internet-Access Types-Digital Subscriber Line-ISDN-56kbps modems-Hubs and Switches for Ethernet Networks-Network Protocols.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To understand Students have an ability to understand the internal architecture of computer	1
CO-2	Understand the Student have an ability to trouble shoot the motherboard and other components of processor	8
CO-3	Ability to understand the memory organization of the processor	5
CO-4	Ability to interface the suitable peripherals wit processor	2
CO-5	Ability to create webpage and connectivity techniques of internet.	3

Text Books:

1. Scott Mueller-Upgrading and repairing PC's-17th Edition-Pearson Education. ISBN 81-317-0071

Semester-V

Medical Electronics

Paper Code: 18U6ELE03 **Hrs: 5/Cr: 4**

Objective:

- ✓ To expose the fundamentals of instrumentation and the working principle of electrodes and transducers

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Unit - I: Electrodes and Transducers

Introduction- Design of medical instruments-Components of the biomedical instrument system-Electrodes-Transducers.

Unit - II: Bio signal Acquisition

Introduction- Physiological signal amplifiers-Isolation amplifiers-Medical preamplifier design-Bridge amplifiers-Line driving amplifier-Current amplifier-Chopper amplifier-Bio-signal analysis-Signal recovery and Data acquisition-Drift compensation in operational amplifiers-Pattern recognition.

Unit – III: Bio potential Recorders

Introduction-Characteristics of the recording system-ECG-EEG-EMG-ERG-EOG-recording with high accuracy-Recorders for off line analysis.

Unit - IV: Physiological Assist Devices

Introduction-Pacemakers-Pacemaker Batteries-Artificial Heart Valves-Defibrillators-Nerve and Muscle Stimulators-Heart-Lung Machine- Kidney Machine

Unit - V: Specialized Medical Equipment

Introduction-Blood Cell Counter-Electron Microscope-Radiation Detectors-Photometer And Colorimeters-Digital Thermometer-Audiometers-X-Ray Tube –X-Ray Machine-Radiography And Fluoroscope-Image Intensifiers-Angiography-

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Students will able to analysis the basic medical instruments	1
CO-2	Students have an ability to operate the medical instruments	4
CO-3	Students have an knowledge on recording medical systems.	5
CO-4	Students will get clear idea about internal organs which related to electrical medical equipment.	6
CO-5	Students will able to produce handle microscope,theromoter,x-ray machine	10

Text Books

1. Biomedical Instrumentation-Dr. M. Arumugam-Anuradha Agencies.

Reference Books

1. Biomedical Instrumentation and Measurements_Lesie Cromwell_TMH
2. R.S.Khanpur-Handbook of Bio Medical Instrumentation-TMH

Semester-VI

Mobile Communication

Paper Code: 18U6ELE04 **Hrs:5/Cr: 4**

- ✓ To learn the concepts of mobile communication

Unit – I

Wireless Transmission

Frequency for Radio Transmission – Signals – Antennas – Signal Propagation – Multiplexing – Space Division Multiplexing – Frequency Division Multiplexing – Time Division Multiplexing–Code Division Multiplexing

Unit – II

Medium Access Control

Space Division Multiple Access – Frequency Division Multiple Access – Time Division Multiple Access – Code Division Multiple Access – Comparison of SDMA, FDMA, TDMA and CDMA.

Unit – III

Telecommunication Systems

GSM – Mobile Services – System Architecture – Radio Interface – Protocols – Localization and Calling – Handover – Security – New Data Services.

Unit – IV

Wireless LAN

Infrared vs. Radio Transmission – Infrastructure and Ad-hoc Network – IEEE 802.11 – Bluetooth Technology.

Unit – V

Mobile Network Layer and Transport Layer

Mobile IP – Dynamic Host Configuration Protocol – Mobile Ad-hoc Networks – Traditional TCP – Classical TCP - TCP Over 2.5/3G Wireless Networks – Performance – Enhancing Proxies.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Understand how the various signal processing and coding techniques combat channel uncertainties	1
CO-2	Understand the concept of cellular communication	4
CO-3	Explain the basic physical and technical principles underlying the modern digital telecommunications network	6
CO-4	Updated on latest wireless technologies and trends in the communication field	7
CO-5	Understand the issues and solutions of various layers of mobile networks, namely MAC layer, Network Layer & Transport Layer.	9

Text Books

1. John Schiller – mobile communication – 2nd edition – Pearson education ltd, New Delhi.
2. W.C.Y.Lee, "Mobile Communications Engineering: Theory and applications", 2nd Edition, McGraw-Hill International, 1998.
3. William stalling – Wireless communication and networks – Pearson Printice hall.

Books for References:

1. T. Pratt and G.W. Bostion, "Satellite Communications", John Wiley and Sons, 2001.
2. M. Richharia, "Mobile Satellite Communication", Pearson Education, 2003.
3. K. Feher, "Wireless Digital Communications - Modulation and Spread Spectrum Applications", Prentice-Hall India, 2005.

Semester-VI

VLSI System and Tools

Paper Code: 18U6ELE05 **Hrs: 5/Cr: 4**

Objective:

- ✓ To learn the basics of VLSI technology and VHDL.

Unit I

Transistors and Layout

Introduction - Integrated Circuit Manufacturing-CMOS Technology-Integrated Circuit Design Techniques-Fabrication Processes-Transistors-Wires and Vias-Design Rules-Layout Design and Tools.

Unit II

Logic Gates and Combinational Logic Networks

Combination logic functions-static complementary gates-wires and delays-switch logic. Combinational logic networks- Low power gates – Gates as IP.

Unit III :

Sequential Machines

Latches and flip-flops-sequential systems and clocking disciplines- One Phase System for Flip flops – Two Phase System for Latches -sequential system design.

Unit IV

Subsystem Design and Floor Planning

Subsystem Design Principles- Combinational Shifters-Adders-ALU'S-Multipliers-High Density Memory-FPGA-PLA. ccc.

Unit V

Architecture and Chip Design

Resister transfer design -data path controller architectures ASM chart design-architecture for low power-architecture testing-Chip design-design methodologies- Modeling with Hardware Description Languages – VHDL.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Acquire qualitative knowledge about the fabrication process of integrated circuit using MOS transistors.	1
CO-2	The student should be able to draw the layout of any logic circuit which helps to understand and estimate parasitics of any logic circuit	3
CO-3	Able design combinational logic machines with optimum power.	7
CO-4	To Design various combinational circuits using gates and transistor	3
CO-5	To Design simple logic circuit using PLA, PAL, FPGA and CPLD.	8

Text Book :

1. Wayne Wolf-Modem VLSI Design-2nd Edition-Prentice Hall PTR.2009. ISBN 978-81-203-3824-1

Reference Books :

1. Neil h.e. weste and kamrun eshraghian – principles of cmos vlsi design - 2nd edition – Pearson education.
2. S.m sze- vlsi technology – 2nd edition – McGraw hill Book Company.

Semester-VI

Digital Signal Processing

Paper Code: 18U6ELE06 **Hrs: 5/Cr: 4**

Objective:

- ✓ To impart the algorithms of Signal Processing.

Unit – I: Discrete Transforms

Introduction to Digital Signal Processing – Discrete Transforms – Discrete-Time Fourier Transform (DTFT), Discrete Convolutions – Linear, Circular and Sectioned Convolution – Discrete Fourier Transform – Properties – Frequency Analysis of Signals using DFT – Decimation-in-Time – FFT algorithms – Inverse FFT

Unit – II: Finite Impulse Response (FIR) Filters

Symmetric and anti-symmetric FIR filters – Design of linear-phase FIR filters using windows: Rectangular – Blackman – Hamming – Hanning – Design of linear-phase FIR filters by frequency-sampling method – Optimum equi-ripple linear-phase FIR filter – Comparison of design methods for linear phase FIR filter.

Unit – III: Infinite Impulse Response (IIR) Filters

IIR filter design by approximation of derivatives – Impulse invariance method – Bilinear transformation – Characteristics of analog filters: Butterworth – Chebyshev – Elliptic – Frequency transformation in the analog and digital domain.

Unit – IV: Architecture of Fixed Point PDSP

Multiplier and multiplier accumulator (MAC) – Modified bus structure and memory access schemes – Multiple access memory – Multi ported memory – VLIW architecture – Pipelining – Special addressing modes in PDSP's – On-chip peripheral – Architecture of TMS 320 C5X.

Unit – V: Assembly Language Instruction and Programming

Syntax – Addressing modes – Load / Store instruction – Addition/ Subtraction instruction – Move Instruction – Multiplication instruction – NORM instruction – Program control instruction – Peripheral control – Program for familiarization of the addressing modes – Program for familiarization of the arithmetic instruction – Real time signal processing program.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Use concepts of trigonometry, complex algebra, Fourier transform, z-transform to analyze the operations on signals and acquire knowledge about Systems.	1
CO-2	Design, implementation, analysis and comparison of digital filters for processing of discrete time signals. Compile and solve the digital signal processing problems using MAT lab.	3
CO-3	Interpret, represent and process discrete/digital signals and systems.	4

CO-4	Thorough understanding of frequency domain analysis of discrete time signals.	5
CO-5	Ability to design & analyze DSP systems like FIR and IIR Filter etc.	8

Text Books:

1. Ramesh Babu P., "Digital Signal Processing", 4th Edition, Scitech Publication Pvt. Ltd, 2007.

2. Venkataramani B, Bhaskar M., "Digital signal processors - Architecture, Programming and Applications", 1st Reprint, TATA McGraw Hill, 2003.

Reference Books:

1. John G. Proakis, Dimitris G. Manolakis, "Digital Signal Processing Principles, Algorithm and Applications", 4th Edition, PHI, 2007.

2. Alan V. Opphenehim, Ronald W. Schafer, "Digital Signal Processing", 2nd Edition, PHI, 2004.

3. Salivahanan S, Vallavaraj A, Gnanapriya C, "Digital Signal Processing", Tata McGraw Hill Publishing, 2003.

4. Poornachandra S., "Signals and System", Vijay Nicole imprints Pvt. Ltd., 2004.

Semester-V

TV and Satellite Communication

Paper Code: 18U5ELS01 **Hrs: 2/Cr: 2**

Objective:

- ✓ To expose the fundamentals of instrumentation and the working principle of TV and Satellite

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Unit-I Television Standards

Aspect ratio of the picture – Vertical scanning – Horizontal scanning- Number of scanning lines – Interlaced scanning- Vertical resolution and horizontal resolution – Positive and negative modulation – Channel bandwidth- Vestigial side band transmission and reception –Complete channel bandwidth – Composite video signal –CCIR – B standards

Unit-II Sync Separator

Sync separator: Basic principle – Vertical and Horizontal sync separation- Vertical and Horizontal output stage – EHT generation.

Servicing Equipments And Alignment: Video pattern generator – sweep generator – Marker generator – Color bar generator – Vectroscope – High voltage probe – RF and AF signal generator – Trouble shooting of color and monochrome receiver – Safety precautions.

Unit-III Orbital Aspects

Brief history and current state of satellite communications – Equations of the orbit locating the satellite in the orbit – Orbit element- Look angle – Elevation and azimuth calculation – Geostationary orbit – MEO –LEO- Visibility – Orbital perturbations- Orbital effects in communications system performance.

Unit-IV Space Craft

Space craft subsystem- Altitude and orbit control system – Telemetry, Tracking and Command (TT&C) – Power systems- Description of communication system – transponder – Implementation – Transmission impairments – Space craft antennas – Equipment reliability.

Unit V Satellite Link

Basic transmission theory – System noise temperature – Noise figure – Down link and up link – Limits on link performance- Design of satellite links for specified 9C/N – rain attenuation model.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Understand the fundamental concepts of television transmitter and receiver systems.	9
CO-2	Understand different color television systems used worldwide and its compatibility	4
CO-3	Understand principles of digital video and component video signal.	5

Text Books:

1. R.R.Gulathi „ Monochrome And Colour Television‟, New Age International (P) Ltd publishers,2000
2. S.P.Bali “Colour Television Theory And Practice” TMH, New Delhi 5th Edition 2002.

Reference Books:

a. DR.D.C.Agarwall, "Satellite Communications" Khanna publications, III edition 1995.
b. K.N.Rajo Rao " Fundamentals Of Satellite Communication
c. "Vishnu Priya Singh and Meenakshi Singh , " Internet – Concepts, Problems And Solutions"
d. Behrou A.Forouzan "Data Communication And Networking ", TMH 2nd Edition
e. William stallings "Data and Computer Communication "Pearson Education Asia.

Semester-VI

Power Electronics

Paper Code: 18U6ELS02 **Hrs:2/Cr: 2**

Objectives:

- ✓ To learn the operative principles of power electronic devices and their applications.

Unit – I

Thyristors – SCR, DIAC, TRIAC, UJT – characteristics and applications.

Unit – II

Inverters – introduction – controlled rectifiers and inverters – ups – SMPS – applications.

Unit – III

DC machines – component parts – methods of excitations – various type of motors – applications.

Unit – IV

AC machines – induction motor torque – step characteristics – synchronous motors – applications.

Unit – V

High frequency heating – induction and dielectric heating – electronic welding controls – electronic timer – applications.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Ability to understand the basics of power electronics	1
CO-2	Developed Skill of analyzing power electronic devices	3
CO-3	Learnt the advance Power electronics converter	5

Text books:

1. Chute & Chute – Electronics In Industry – Tata Mcgraw Hill.

Reference books:

1. Mital. G.K. Industrial Electronics – Kanna Publications.
2. Singh – Power Electronics – Tata Mcgraw Hill.

NMEC Paper-I

Cellular Phone Servicing

Paper Code: 18U3ELN01 /18U4ELN01 **Hrs: 2/Cr:2**

Objective:

- ✓ To learn the concepts of cellular phone servicing

Unit – I

Introduction – History of Wireless Communication – Frequency for Radio Transmission – Signals – Modulation – Wave Propagation – Antennas.

Unit – II

MTSO - Cellular Systems – GSM System Bands – CDMA System – GPRS Techniques. Bluetooth: Architecture – Radio Layer – Link Manager Protocol – L2CAP.

Unit - III:

Types of Batteries, Memory Cards, Messaging, Ring Tones, Keypad Types, Display Types. Handset Form Factor - SMS Abbreviations - Mobile OS.

Unit - IV

Ultrasonic Cleaner - Ports - SIM Card Reader - Memory Card Reader - Mobile Virus - Virus Prevention - Removing Virus - Health Hazards with Mobiles - SAR.

Unit – V

Battery Check up – Key Pad Servicing – Display Servicing – Charger Check Up – FLASHING

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To study about the History of Communication. To study about the communication process between receiver and transmitter.	1
CO-2	To have knowledge of the mobile system specifications.	4
CO-3	To analyze the mobile date capacity. To study about the storage capacity in GB Level.	2
CO-4	To identify and evaluate currently available mobile phone apps related to the prevention for health care.	5
CO-5	To analyze the power source in battery. To identify the problem in activation the internet web page process.	8

Text books:

1. Regis J Bates – Wireless Networked Communications – TMH.
2. Jochen schiller – mobile communication – 2nd edition – person education ltd, New Delhi.

Reference book:

1. William c. Y. Lee – mobile cellular telecommunication – TMH
2. Modern Mobile phone Introduction & Servicing - Manahar Lotia - BPB - (Unit - I)

3. Modern Mobile Phone Repair using Computer Software & Service Devices - Manahar Lotia - BPB - 120/- (Units I, IV & V)

NMEC Paper-II

Biomedical Instrumentation

Paper Code: 18U3ELN02/18U4ELN02 **Hrs: 2/Cr:2**

Objective:

- ✓ To get exposure in various measuring techniques in the field of biomedical.

Unit I - Bio-Electric Signals

Physiological system of the body – man instrument system – bio-electrical signals – Resting and Action potential – Propagation of Action potential – Polarization – Bio Electric Potentials (ECG, EEG & EMG) .

Unit II - Electrodes

Electrodes: Electrode theory – Half cell potential – Purpose of Electrode paste – Bio – potential Electrode – Micro electrode – Skin surface electrode – Needle electrode – PH electrode.

Unit III - Bio-Medical Recorders

ECG, EEG & EMG recorder – Blood Pressure measurement – Blood flow measurement – Measurement of respiration rate.

Unit IV - Therapeutic Equipments

Pacemakers – Internal and External pacemakers. Defibrillators – Devices to protect against electrical hazards.

Unit V - Electronic Instrument for Medical Applications

X-ray machine – CT scan – CAT scanners – Lasers in medicine – Ultrasonic Imaging System – MRI system.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To understand bio electrical signals of human body	1
CO-2	To learnt about the working of electrodes and transducers	4
CO-3	To learnt about the working and internal setup function of the bio-medical recording and patient monitoring system	5
CO-4	Understand the working and function of artificial pacemaker.	3
CO-5	Learnt the function and working of some medical instruments	10

Text Books

1. Biomedical Instrumentation – Dr. M. Arumugam – Amerada Agencies.

Reference Books

1. Biomedical Instrumentation and Measurements – Lesie Cromwell – TMH
2. R.S. Kanpur - Handbook of Bio Medical Instrumentation - TMH

NMEC Paper-III

PC Hardware Maintenance and Networking

Paper Code: 18U3ELN03/18U4ELN03 **Hrs: 2/Cr: 2**

Objective:

To learn internal configuration, connection and maintenance of linear systems.

Unit: I Personal Computers and Processors

History of the PC-System Types-Data I/O Bus –Pin Address Bus-Internal Register-Processor modes-Processor Speed Rating.

Unit: II Mother board and BIOS

PC and XT-Full size AT-ATX-Processor Sockets-Intel Chipsets-AMD Chipsets-Intel Register-Mother Board Connectors-At and ATX Power Supply Connectors.

Unit: III Memories

ROM-DRAM-Caches memory-SDRAM-DDR SDRAM-Hard Disk Definition-Hard Disk Dive-Operations and Components. Removable Storage – Floppy Disk-Flash memory Devices-CD Based Optical Technology-DVD Construction and Technology-Blur ray disk

Unit: IV Peripherals

ATA standards-Parallel ATA-LCD Panels-CRT Display-VGA Standards-Audio Adapter-Serial Port Configuration –Parallel Port Configuration-104 Keyboard-Pointing Devices-USB Technical Details-USB Adapter.

Unit: V Internet and Networking

Internet and LAN Connectivity-Company Broadband and Dialup modem-Broadband Internet-Access Types-Digital Subscriber Line-ISDN-56kbps modems-Hubs and Switches for Ethernet Networks-Network Protocols.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Understood the history of PC under basic concept of register.	1
CO-2	Learnt the internal architecture of PC	8
CO-3	Learnt the memory architecture and peripheral interfacing with PC.	4

Text Books:

2. Scott Mueller-Upgrading and repairing PC's-17th Edition-Pearson Education. ISBN 81-317-0071-2

Allied Paper

Common for B.Sc (CS), BCA

Semester: II

Allied I: Principles of Digital Electronics

Paper Code: 18U2ELA01 **Hrs: 6/Cr: 4**

Objective:

- ✓ To learn the basic function of Number system and logic gates.
- ✓ To learn the design procedure of Sequential and Combinational logic circuits.
- ✓ To learn the basic function of A/D and D/A Converters.

Unit – I

Number systems and Binary codes:

Introduction : Digital Electronics – Binary System – Decimal System – Octal – Hexadecimal – Binary arithmetic – BCD – Gray Code – Excess – 3 Code – ASCII Code – Conversion-1's and 2's Complement .

Unit – II

Boolean algebra and logic gate:

Logic Gates – Universal gates – Basic Laws of Boolean Algebra – De Morgan's Theorems - Karnaugh map – Sum of Product (SOP) – Product of Sum (POS).

Unit – III

Combinational Logic Circuits :

Half Adder – Full Adder – BCD Adder – Half Subtractor – Full Subtractor – Encoder – Decoder – Multiplexer – Demultiplexer.

Unit – IV

Sequential Circuits:

Flip Flops – RS Flip Flops – Data Latch or D Flip Flop – JK Flip Flop – T Flip Flop – Master Slave J K Flip Flop – Register – Shift registers.

Unit – V

Counters:

Asynchronous or Ripple Counter – Synchronous Counter – Ring Counter – Programmable Counter – Classification of Memory.

Course outcomes (COs)

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Ability to understand digital signals and number systems	4
CO-2	Ability to understand the operations of basic and universal logic gates	7
CO-3	Analysis the function of combinational logic circuits with parity checker	3
CO-4	Ability to acquire knowledge on sequential and combinational logic circuits	5
CO-5	Understand the basic concept of converters	1

Text Books:

1. V.K.Puri, “Digital Electronics Circuit Systems”, TMH.

Reference Books:

1. Leach & Malvino, “Digital Principle and Application”, TMH.

Selvamm Arts & Science College (Autonomous) Namakkal

(Nationally Re- Accredited (2nd cycle) with "A" Grade by NAAC)

UGC Recognized 2(f) and 12(B) Institution

Affiliated to Periyar University, Salem

DEPARTMENT OF

HOTEL MANAGEMENT AND CATERING SCIENCE

B.Sc., HOTEL MANAGEMENT AND CATERING SCIENCE

SYLLABUS

CHOICE BASED CREDIT SYSTEM

SEMESTER PATTERN

2018-2019 Onwards

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

Vision:

Education with ethical values resulting in knowledge and skills, valued by industry and society, leading to employability and leadership

Mission:

To provide quality education and contribute to the ever expanding knowledge and skills in the hospitality industry, an outstanding work based and work related learning experience. Establishing values that will guide for thoughtfulness and humanness

Programme Outcomes (UG)

PO 1: Communicate effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.

PO 2: **Environment Concern** - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

COURSE OF STUDY						
Semester	**Course Code**	**Course**	**Title of the Paper**	**Marks**		
				IA	SE	Total
I	18U1FTA01	Language-I	Tamil – I	25	75	100
	18U1FEN01	Language-I	English-I	25	75	100
	18U1HM01	Core-I	Basic food commodities	25	75	100
	18U1HM02	Core-II	Basic Food & Beverage Service	25	75	100
	18U1HMA01	Allied-I	Front Office Operation	25	75	100
	18U1VE01	Value Education	Yoga & Practice	25	75	100
	18U1HMP01	Practical-I	Basic Food & Beverage Service Practical	40	60	100
	18U1HMAP01	Allied Practical-I	Front Office Operation practical	40	60	100
			Total	**230**	**570**	**800**
II	18U2FTA02	Language-II	Tamil - II	25	75	100
	18U2FEN02	Language-II	English-II	25	75	100
	18U2HM03	Core-III	Basic culinary arts	25	75	100
	18U2HM04	Core-IV	Accommodation operation	25	75	100
	18U2HMA02	Allied - II	Food Science and Nutrition	25	75	100
	18U2ES01		Environmental studies Industrial Links	25	75	100
	18U2VE02	Value Education	Value for life	25	75	100
	18U2HMP02	Practical-II	Indian Cuisine Practical	40	60	100
			Total	**215**	**585**	**800**

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

Semester	Course code	Course	Title of the Paper	Marks		
				IA	SE	Total
III	18U3HM05	Core-V	Regional Cuisine of India	25	75	100
	18U3HM06	Core-VI	Beverage Service	25	75	100
	18U3HMA03	Allied – III	Front Office Management	25	75	100
	18U3HME01	Elective- I	Principles of Tourism	25	75	100
	18U3HMS01	SBEC-I	Bakery and Confectionery	25	75	100
	18U3HMP03	Practical-III	Beverage Service Practical	40	60	100
	18U3HMP04	Practical-IV	Regional Cuisine of India Practical	40	60	100
	18U3HMN01	NMEC-I	Basic Cookery	25	75	100
			TOTAL	**230**	**570**	**800**
IV	18U4HM07	Core-VII	Advanced Culinary Arts	25	75	100
	18U4HM08	Core-VIII	Accommodation Management	25	75	100
	18U4HMA04	Allied-IV	Application of computer	25	75	100
	18U4HME02	Elective – II	Hotel Accounts	25	75	100
	18U4HMS02	SBEC-II	Hotel French	25	75	100
	18U4HMP05	Practical - V	Continental Cuisine Practical	40	60	100
	18U4HMP06	Practical-VI	Accommodation operation Practical	40	60	100
	18U4HMAP02	Allied Practical-II	Application of computer	40	60	100
	18U4HMN02	NMEC-II	Basic Hospitality operation	25	75	100
			TOTAL	**270**	**630**	**900**

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

Semester	Course Code	Course	Title of the Paper	Marks		
				IA	SE	Total
V	18U5HM09	Core-IX	Food & Beverage Management	25	75	100
	18U5HM10	Core-X	Travel and Tourism	25	75	100
	18U5HM11	Core – XI	Hotel & Business Law	25	75	100
	18U5HM12	Core – XII	Entrepreneurship Development	25	75	100
	18U5HME03	Elective - III	Hotel Engineering	25	75	100
	18U5HMTR01		Training Report & Viva-Voice	40	60	100
			TOTAL	**165**	**435**	**600**
VI	18U6HM13	Core-XIII	International Culinary Arts	25	75	100
	18U6HM14	Core - XIV	Bar Management	25	75	100
	18U6HM15	Core-XV	Human Resource Management	25	75	100
	18U6HM16	Core – XVI	Resort Management	25	75	100
	18U6HM17	Core - XVII	Hospitality Marketing	25	75	100
	18U6HMP08	Practical – VIII	International Cuisine Practical	40	60	100
	18U6HMP09	Practical-IX	Bar Management Practical	40	60	100
	18U6HMPR01		Project & Viva –Voce	40	60	100
	18U6EX01		Extension Activities			
			TOTAL	**245**	**555**	**800**
			Grand Total	**13800**	**3360**	**4800**

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COURSE OF STUDY								
Semester	**Part**	**Course**	**Title of the Paper**	**Hrs**	**Credit**	**Marks**		
						IA	SE	Total
I	Part-I	Language-I	Tamil – I	5	4	25	75	100
	Part-II	Language-I	English-I	5	4	25	75	100
	Part-III	Core-I	Basic food commodities	5	4	25	75	100
		Core-II	Basic Food & Beverage Service	5	4	25	75	100
	Part-III	Allied-I	Front Office Operation	4	3	25	75	100
	Part-IV	Value Education	Yoga & Practice	2	1	25	75	100
	Part-III	Practical-I	Basic Food & Beverage Service Practical	2	2	40	60	100
	Part-III	Allied Practical - I	Front Office Operation practical	2	2	40	60	100
			Total	**30**	**24**	**230**	**570**	**800**
II	Part-I	Language-II	Tamil - II	5	4	25	75	100
	Part-II	Language-II	English-II	5	4	25	75	100
	Part-III	Core-III	Basic culinary arts	5	4	25	75	100
	Part-III	Core-IV	Accommodation operation	5	4	25	75	100
	Part - III	Allied – II	Food Science and Nutrition	5	3	25	75	100
	Part-IV		Environmental studies Industrial Links	1	1	25	75	100
	Part-IV	Value Education	Values for life	1	1	25	75	100
	Part-III	Practical-II	Indian Cuisine Practical	3	2	40	60	100
			Total	**30**	**23**	**215**	**585**	**800**

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COURSE OF STUDY								
Semester	**Part**	**Course**	**Title of the Paper**	**Hrs**	**Credit**	**Marks**		
						IA	SE	Total
III	Part-III	Core-V	Regional Cuisine of India	6	4	25	75	100
	Part-III	Core-VI	Beverage Service	5	4	25	75	100
	Part-III	Allied – III	Front Office Management	4	3	25	75	100
	Part-III	Elective- I	Principles of Tourism	5	4	25	75	100
	Part-IV	SBEC-I	Bakery and Confectionery	2	2	25	75	100
	Part-III	Practical-III	Beverage Service Practical	3	2	40	60	100
	Part-III	Practical-IV	Regional Cuisine of India Practical	3	2	40	60	100
	Part-IV	NMEC-I	Basic Cookery	2	2	25	75	100
			TOTAL	**30**	**23**	**230**	**570**	**800**
IV	Part-III	Core-VII	Advanced Culinary Arts	5	4	25	75	100
	Part –III	Core-VIII	Accommodation Management	5	4	25	75	100
	Part-III	Allied-IV	Application of computer	4	3	25	75	100
	Part-III	Elective – II	Hotel Accounts	4	3	25	75	100
	Part-IV	SBEC-II	Hotel French	2	2	25	75	100
	Part – III	Practical -V	Continental Cuisine Practical	3	2	40	60	100
	Part – III	Practical-VI	Accommodation operation Practical	2	2	40	60	100
	Part – III	Allied Practical-II	Application of computer	3	1	40	60	100
	Part-IV	NMEC-II	Basic Hospitality operation	2	2	25	75	100
			TOTAL	**30**	**23**	**270**	**630**	**900**

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COURSE OF STUDY								
Semester	**Part**	**Course**	**Title of the Paper**	**Hrs**	**Credit**	**Marks**		
						IA	SE	Total
V	Part-III	Core-IX	Food & Beverage Management	6	4	25	75	100
	Part-III	Core-X	Travel and Tourism	6	4	25	75	100
	Part-III	Core – XI	Hotel & Business Law	6	4	25	75	100
	Part-III	Core – XII	Entrepreneurship Development	5	4	25	75	100
	Part - III	Elective – III	Hotel Engineering	5	4	25	75	100
			Training Report & Viva-Voice		2	40	60	100
			TOTAL	**28**	**22**	**165**	**435**	**600**
VI	Part-III	Core-XIII	International Culinary Arts	5	4	25	75	100
	Part-III	Core - XIV	Bar Management	4	3	25	75	100
	Part-III	Core - XV	Human Resource Management	4	3	25	75	100
	Part-III	Core - XVI	Resort Management	4	3	25	75	100
		Core - XVII	Hospitality Marketing	4	3	25	75	100
	Part-III	Practical - VIII	International Cuisine Practical	3	2	40	60	100
	Part-III	Practical-IX	Bar Management Practical	2	2	40	60	100
	Part-III		Project & Viva –Voce	2	2	40	60	100
	Part-IV	STE	Skill (LSRW) Through English	2	1	25	75	100
	Part-V		Extension Activities		2			
			TOTAL	**30**	**25**	**270**	**630**	**900**
			Grand Total	**180**	**140**	**1380**	**3360**	**4800**

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Programme Specific Outcomes (PSOs)

PSO1:	Gain Knowledge to differentiate the food materials and processing of product
PSO2:	Evaluate knowledge of all the menu items and alcoholic and non-alcoholic beverages which are on offer in the outlet.
PSO3:	Describe the role of the housekeeping department in hotel operations,
PSO4:	Understand the characteristics and methods of cooking of Indian and International cuisines.
PSO5:	Apply food service etiquettes and skills while serving a guest.
PSO6:	Apply the task, functions, duties and activities in the operation of the hotels, restaurants, travel, government and non-government agencies in accordance with the competency standards.
PSO7:	Construct leadership and team spirit shaping into industry ready candidates
PSO8:	Understand the role, checking in, departure, communication, knowledge and function of the Hotel.
PSO9:	Performs work activities effectively and efficiently to the standards expected in the operation required in the tourism hospitality sectors.
PSO10:	Effects of common food preparation methods and food storage conditions on survival and growth of microbial contaminants.

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CORE - I: Basic Food Commodities

Semester : I **Credit : 4**

Course Code: 18U1HM01 **Hrs/week : 5**

Course Objective:

After the completion of this course, students will be able to know the basic techniques Followed in cookery

UNIT – I

1.1Cereals –Varieties - Processing- Storage and Uses in Cooking

1.2Pulses- Varieties- Storage and Uses in Cooking

1.3Rice, Purchasing and selection of rice, Storage and uses.

1.4Varieties of rice and other cereals

1.5Food additives-Uses and application

UNIT – II

2.1Milk and Milk Products.

2.2Composition and Importance -Processing Products

2.3Food Value - Storage Points

2.4Yoghurt, Cream and Butter- types and uses

2.5Classification of cheese - uses and processing – examples of cheese

UNIT – III

3.1Meat – meat tender factors

3.2Cuts of meat (Lamb, beef and pork)

3.3Qualities of lamb and mutton – preparation of meat

3.4Poultry – Classification – Selection – Cuts of poultry

3.5Fish - Classification - Selection - Cuts of fish

UNIT – IV

4.1Nuts - Name of the nuts used in cooking

4.2Fruits - classification and uses of fruits in cookery

4.3Herbs & Spices - types - uses

4.4Condiments - Importance - uses

4.5Preparation of ingredients

UNIT – V

5.1Vegetables: classification - Nutritive value

5.2Selection and storage of vegetables

5.3Various cuts of vegetables in cooking

5.4Pigments and colour changes - Effect of heat on vegetables

5.5Potatoes: cut and shape – uses – cooking methods

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Know the main food commodities	**1**
CO - 2	Know where the main food commodities can be obtained	**4**
CO - 3	Know how the main food commodities should be stored	**4**

Text Books:

1. Parvinder S.Bali, Food Production Operations, Oxford University, 2011 (Unit – I & II)

2. Theory of Cookery by Krishna Arora (Unit – III, IV & V)

REFERENCE BOOKS:

1. Modern Cookery for Teaching and Trade – Vol. I –Thangam E. Philip
2. Theory of Cookery – Krishna Arora (Frank Bros. & Co., New Delhi)
3. The Theory of Catering - Victor Ceserani, Ronald Kinton and David Foskett
4. A Taste of India – Madhur Jeffrey.
5. An introduction to food and beverage studies – margris & McCreery -

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CORE - II: Basic Food & Beverage Service

Semester : I **Credit : 4**

Course Code: 18U1HM02 **Hrs/week : 5**

Course Objective: The module has been designed so as to inculcate a basic understanding of the structural and operational perspectives of Food and Beverage Service so that the students could be gradually exposed to the professional and applied intricacies of the subject.

UNIT – I

1.1 Growth of the hotel Industry in India

1.2 Classification of catering establishments (Welfare & Commercial)

1.3 Types of F&B Outlets

1.4 Staff Hierarchy of F & B Service - duties and Responsibilities

1.5 Attributes of good waiter

UNIT – II

2.1 F&B Service Equipments - criteria for selection of equipment

2.2 Types (tableware, glassware, chinaware, furniture and linen) - Maintenance procedures

2.3 Mis-en scene, Mis-en place - Preparation of Sideboards

2.4 Ancillary departments: Pantry - still room - silver room - wash-up and Hotplate

2.5 Kitchen stewarding (wash up, Dish washing methods – manual and machine)

UNIT – III

3.1 Origin of menu - Menu planning Considerations & Constraints

3.2 Types of Menu

3.3 French Classical Menu - Compiling with Accompaniments and Garnishes

3.4 Laying covers for different meals & menus - Table Clearance procedures

3.5 Rules and procedure for serving a meal and latest concepts of service

UNIT – IV

4.1 Methods of service- French - American -English - Russian - Indian

4.2 Sequence of service- Breakfast- Brunch-Lunch-Afternoon Tea -High tea-Dinner- Supper

4.3 Fast food – Chain of international fast food – Different food served in fast food - history and function

4.4 Room service –Duties of RSOT - Way of order taking

4.5 Room service procedures- Clearance at Room service -Billing

UNIT – V

5.1 K.O.T- manual & computerized - Uses and flow chart of KOT

5.2 Cash & Credit handling

5.3 Making Bill - Manual, Computerized

5.4 Dealing with guest complaints

5.5 Maintenance of Restaurant furniture

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Ability to recognize various types of restaurant and their features	**2**
CO - 2	Demonstrate your knowledge of the range of services offered by your establishment.	**2**
CO - 3	Endeavour to minimize conflict between customer and your establishment needs.	**5**
CO - 4	Follow the establishment procedures and routines for dealing with complaints.	**6**

Text Books:

1. Food and Beverage Service R.Singaravelavan, Oxford University Press, 2011(Unit – I,II & III)
2. Food and Beverage Service, Sudhir Andrews, Mc Graw Hill Education, 2014(Unit –IV & V)

Reference Books:

1. Essential Table Service for Restaurants – John Fuller
2. Modern Restaurant Service – John Fuller
3. Beverage Management – Michael Coleman
4. Food & Beverage Service Management-Brian Varghese.
5. Food and Beverage Service – Boby George

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ALLIED – I: Front Office Operation

Semester : I **Credit : 3**

Course Code: 18U1HMA01 **Hrs/week : 4**

Course Objective:

After the completion of this course, students will be able to know and comprehend the basic Operations of Front Office

UNIT – I

1.1Definition of Hotel

1.2The origin of Hospitality Industry

1.3Classification of Hotels- (Location, Plan, Types of rooms, Clientele and Facilities offered)

1.4Introduction to Front office department

1.5Layout of Front office

UNIT – II

2.1Organization chart of Front office- Duties and Responsibilities of Each Level staffs.

2.2Qualities Needed for Front Office Staff

2.3Inter department - Co-ordination, Co-operation and Communication

2.4Bell desk Activities

2.5Organizational structure, Duties and responsibilities of Bell desk staff.

UNIT – III

3.1Reservation-Process of reservation

3.2Reservation system

3.3Information given by front office

3.4Hotel Brochures and Tariff

3.5Arrival process-Pre Registration

UNIT – IV

4.1Front Office Equipment - Manual System - Semi automatic system - Automatic system

4.2Modes & Sources of Reservation- Functions of Reservation

4.3Reservation & Cancellation Procedure

4.4Group Reservation Procedures

4.5Reservation Chart-Whitney system-Reservation Diary

UNIT – V

5.1Registration, Receiving and greeting the guest

5.2Basic Reception Procedure

5.3Types of Registers-Flow of Registration

5.4Document generated in Registration Process

5.5Rooming Procedure for Walk-in and Reservation guest

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Ability to identify types of hotels, rooms, room rates and guests	**8**
CO - 2	Definitive Knowledge about accommodation management, effective handling of guest complaints.	**7**
CO - 3	Knowledge about hierarchy of front office department, their responsibilities.	**9**
CO - 4	Ability to perform duties and handle equipment effectively in front office	**6**

Text Books:

1. R.Jatashankar**,** Hotel Front Office, Oxfrod University Press, 2013 (Unit – I, II & III)

2. Sudhir Andrews, Hotel Front Office, Tata McGraw Hill, 2011 (Unit – IV& V)

REFERENCE BOOKS

1. Sudhir Andrews – Hotel Front Office Training Manual – TMH PUB
2. Paul B white and Helen Beckley – Hotel Reception – Arnold Heinman Publication
3. Dr. Jagmohan Negi – Grading and Classification of Hotel, Tourism and Restaurant, Principles and Practices – Kanishka publishers.

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Practical – I: Basic Food & Beverage Service

Semester : I **Credit : 2**

Course Code: 18U1HMP01 **Hrs/week : 2**

Course Objective: The module has been designed so as to inculcate a basic understanding of the structural and operational perspectives of Food and Beverage Service.

Identification of cutlery- crockery -glassware and miscellaneous equipments

1. Serviette folds.
2. Laying and relaying of table cloths.
3. Cleaning and polishing / wiping of cutlery - crockery and glassware.
4. Carrying a light tray.
5. Carrying a heavy tray.
6. Carrying glasses.
7. Handling cutlery and crockery.
8. Manipulating service spoon and fork.
9. Service of water.
10. Arrangement of sideboard.
11. Tables d'hôte cover laying.
12. A la carte cover laying.
13. Practice of simple menu compilation.
14. Receiving the guests, presenting the menu, taking orders.
15. A Service of Hors d'oeuvre.
16. Service of soup, fish, pastas.
17. Service of main course.
18. Service of salads.
19. Service of sweet.
20. Service of Cheese.
21. Service of non – alcoholic drinks, tea, coffee.
22. Taking orders through telephone for room service.
23. Changing ashtray during the service
24. Presenting the bill.

Text Book:

R.Singaravelavan, Food and Beverage Service, Oxford University Press, 2011

REFERENCE BOOKS

1. Klinton & Cesarani: Practical Cookery; Arnold Heinemann.
2. Larousse Gastronomique- Cookery Encyclopedia by Paul Hamlyn
3. Chef's Manual of Kitchen Management – John Fuller.
4. Le Repertoire De La Cuisine – L.Saulnier

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Allied Practical – I: Front Office Operation Practical

Semester : I **Credit : 2**

Course Code: 18U1HMAP01 **Hrs/week : 2**

Course Objective:

After the completion of this course, students will be able to understand and apply the basic Fundamentals of Front Office

Layout of Front office Department

1. Reservation procedure.
2. Density Chart
3. Check-in and Check -out procedure. Role play of the following staff
   a. Doorman
   b. Bellboy
   c. Receptionist
   d. Information Assistant
   e. Cashier.
4. Front office records and reports
5. Calculation of statistical data:
   a. House count
   b. Room position
   c. Percentage of room occupancy
   d. Percentage of foreign occupancy
   e. Percentage of local occupancy
   f. Percentage of walk – ins
   g. Percentage of no- shows
   h. Average room rate
6. Handling emergencies
   a. lost and found
   b. fire in the hotel
   c. death
   d. accidents

e. drunk guest
f. Theft.

7. Handling guest complaints and solving problems.
8. Places of tourist interest in India.
9. Domestic and International airlines

Text Books:

1. Jatashanker R.Tewari, Hotel Front Office Operation and Management, Oxford University press, 2010.

2. Sudhir Andrews, Hotel Front Office Training manual, Tata Mac Graw Hill, 2007.

REFERENCE BOOKS:

1. Sue Baker, Pam Bradley and Jeremy Huyton. Principles of Hotel Front Office Operations: London. Cassell Publishers. 2nd Edition. 2001.
2. Ahmed Ismail. Front Office Operations and Management: Delmar. Thomson Publishers.1st Reprint. 2002.

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Core-III: Basic Culinary Arts

Semester : II **Credit : 4**

Course Code: 18U2HM03 **Hrs/week : 5**

Course Objective: The course aims at preparing the students to subsequently understand and apply Professional Cookery during the subsequent semesters. Thus, topics ranging from 'Overview of the Catering Industry', 'kitchen organization' and 'Menu Planning' have been incorporated for study.

Unit – I

1.1Overview of the Catering Industry.

1.2Attitude and Behaviors in the kitchen – personal Hygiene.

1.3Kitchen Organization structure - Duties and Responsibilities of various chefs.

1.4Effects Of Cooking

1.5Aims and Objectives of Cooking food.

UNIT – II

2.1Raw materials: Fats & oils - types and their uses.

2.2Raising agents - Salt & Liquid - Functions, types and their uses.

2.3Flavorings and seasoning agents - uses and examples.

2.4Sweetening agents - Thickening agents

2.5Egg cookery – structure and uses of egg

UNIT-III

3.1Texture of food

3.2Transference of heat to food by conduction, convection and radiation

3.3Methods of cooking - special method of cooking foods

3.4Reshuffle – general rules for Reheating - Reshuffle dishes

3.5Fuel: Types - Merits and demerits of different fuels

UNIT –IV

4.1Stocks: Meaning - Uses and types of stocks

4.2Glazes: Meaning and uses.

4.3Roux: meaning - types of roux.

4.4Sauces: Meaning - qualities of a good sauce

4.5Types of sauces - Proprietary sauces and mother sauces.

UNIT –V

5.1Soups: Classification of soups, meaning of each type with one Recipe each

5.2Styles of consommé & garnishes.

5.3Hors d' oeuvre: Meaning - types.

5.4Salads- types of Salads- Parts of salad- salad dressings.

5.5Pasta: History - Production -types of Pasta.

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Learn safety and hygiene regulations and apply them in kitchen operations.	**1**
CO - 2	Demonstrate sensitivity to maintain and protect natural and manmade resource areas in kitchen.	**4**
CO - 3	Knowledge to perform duties in well planned kitchen layout	**7**
CO - 4	Ability to carry out preparation of food and handle kitchen equipment	**1**

Text Books:

1. Parvinder S.Bali, Food Production Operations, Oxford University, 2011 (Unit – I & II)

2. Theory of Cookery by Krishna Arora (Unit – III, IV & V)

REFERENCE BOOKS:

1. Modern Cookery for Teaching and Trade – Vol. I & II –Thangam E. Philip
2. (Orient Longman Publications)
3. Practical Cookery – Kinton and Ceserani (ELBS Publications)
4. The Theory of Catering – Kinton and Ceserani (ELBS Publications)
5. Theory of Cookery – Krishna Arora (Frank Bros. & Co., New Delhi)

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Core-IV: Accommodation Operation- I

Semester : II **Credit : 4**

Course Code: 18U2HM04 **Hrs/week : 5**

Course Objective: The course endeavors to introduce the students about the concept significance of the organization and basic functions of Housekeeping.

UNIT – I

1.1Role of Housekeeping in hospitality operation

1.2Layout of housekeeping department

1.3Attributes and qualities of housekeeping staff

1.4Organizational structure for housekeeping department (large, medium and small hotel)

1.5Duties and responsibilities of housekeeping staff

UNIT – II

2.1Function of housekeeping department

2.2Desk control - records and registers in maintained

2.3Co - ordination and co- operation with other department

2.4Keys - types and control of keys

2.5Maid service room – layout and essential features

UNIT – III

3.1Cleaning equipment - classification - uses

3.2Care and maintenance - selection of equipment

3.3Cleaning agents - Classification - uses

3.4Selection of cleaning agents

3.5Storage of cleaning agents – issuing of cleaning agents

UNIT – IV

4.1Bed making procedure, Lost and found procedure

4.2Preparing a room report - check list

4.3Pest control-types of pest, control procedure

4.4Safety and security in HK operations

4.5Housekeeping supervision and inspection

UNIT – V

5.1Guest room cleaning (Occupied, departure, vacant) - public area cleaning

5.2Special cleaning programs (periodical & spring) - Evening service and second service

5.3Standard supplies for guest room, bathroom and VIP

5.4Types of register and file maintained - Par stock

5.5Public area cleaning procedure, types of cleaning

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Attributes of housekeeping department	**3**
CO - 2	Brand names of cleaning equipments and agents	**3**
CO - 3	Terminology used in cleaning	**6**

Text Books:

1. G.Raghubalan, Hotel Housekeeping, Oxfrod University Press, 2010 (Unit – I & II)
2. Sudhir Andrews, Hotel Housekeeping Training manual, Tata Mac Graw Hill, 2007 (Unit – III, IV & V)

REFERENCES

1) Hotel Hostel and Hospital Housekeeping – Joan C Branson & Margaret Lennox (ELBS)

2) Managing Housekeeping Operations – Margaret Kappa & Aleta Nitschke

3) Hotel House Keeping – Sudhier Andrews Publisher: Tata McGraw Hill.

4) The Professional Housekeeper – Tucker Schneider, Publisher: VNR.

5) Professional Management of Housekeeping Operations- Martin Jones, Publisher: Wiley & Sons

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Allied – II: Food Science and Nutrition

Semester : II **Credit : 3**

Course Code: 18U2HMA02 **Hrs/week : 5**

Course Objective:

After the completion of this course, students will be able to understand and apply the basic fundamentals of culinary arts.

UNIT –I

1.1 Definition of Nutrition – Relation of food and healthy – Functions of food

1.2Carbohydrates – Source of Carbohydrates and Functions

1.3Proteins – Sources of Proteins and Functions

1.4Lipids –Sources of Fats – Fatty acids –Functions of Fat

UNIT –II

2.1 Water– Functions and importance – Daily intake –Nutritive value of beverages - Deficiency

2.2 Vitamins – Classification– source – Deficiency

2.3 Minerals–Functions, source, daily requirements – Deficiency

2.4 Energy – Definition– Forms of energy role of energy – Functions – Deficiency

UNIT –III

3.1 Balanced Diet – Uses of Balanced Diet

3.2 Basic food groups– Food Pyramid

3.3 Definition– Hygiene factors affecting – Meal planning – Personal hygiene – Kitchen hygiene and food Hygiene

3.4 Common food processing techniques

UNIT –IV

4.1 Additives – Food Additives and Types

4.2 Food Quality– Definition, Quality attributes and its measurements colors

4.3 Naturals and synthetic colors used in foods

4.4 Flavor – Types – Applications of Food

UNIT – V

5.1 Food processing – Objectives of food processing

5.2 Effects of food processing

5.3 Food Preservation– Definition **–** Preservation method **–** Low temperature and High temperature

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Basic principles of common food preservation methods.	**10**
CO - 2	Underlying the properties of various food components.	**4**
CO - 3	Vitamins and Minerals suggestion for various groups	**1**
CO - 4	Special nutritional requirements	**10**

Text Books:

1. Sunetra Roday, Food Science and Nutrition, Oxford University Press, 2013 (Unit – I,II,III, IV & V)

Books for Reference:

1. Jay.J , 2005, Modern Food Microbiology, Springer US, 2005.7th Edition
2. Frazier and Westhoff ,2013, Food Microbiology , McGraw Hill Education; Fifth edition (1 August 2013)
3. Jacob M , 1989, Safe food Handling , Geneva : World Health Organization, 1989
4. Hobbs Betty, 2007, Food Processing, Jim McLauchlin, 2007. Seventh Edition.

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Practical-II: Indian Cuisine

Semester : II **Credit : 2**

Course Code: 18U2HMP02 **Hrs/week : 3**

Course Objective: The course aims at preparing the students to subsequently understand and making them experts in preparing Indian cuisine dishes.

I. Identification of Kitchen Utensils and Equipments

II. Identification of Basic Cereals - Pulses - Herbs- Spices and Flavouring agents.

III. Demonstration

a. Cuts of Vegetables

b. Basic Indian gravies (Red- Green- white- brown and yellow)

c. Stock- white and brown

d. Basic mother sauces- Bechemel- Veloute- Espagnole- Tomato- Hollandaise and Mayonnaise

IV. Jointing of Poultry

V. Cuts of Fish

VI. 20 sets of Recipes by various Indian cuisine- each recipe containing 5 dishes each in the following order

i) Indian Bread/ Rice/ Pulaos/ Biriyani

ii) Egg/ Fish/ Meat- chicken/mutton

iii) Vegetable Preparation - Gravy/ dry

iv) Raithas / cuchumber

v) Indian sweets- Hot/ cold

Text Books:

1. Modern Cookery for Teaching and the Trade Vol. I & Vol.II – Thangam E.Philp (Mumbai, Orient Longment)

2. Food Production Theory 1st edition, K.Damodharan

Reference Books:

1. Klinton & Cesarani: Practical Cookery Arnold Heinemann.
2. Larousse Gastronomique cookery encyclopedia by paul hamlyn.
3. Chef's Manual of Kitchen Management – John Fuller.
4. Le repertoire de la cuisine – l. Saulnier.

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Core-V: Regional Cuisine of India

Semester : III **Credit : 4**

Course Code: 18U3HM05 **Hrs/week : 6**

Course Objective: Students learn study recipes from different regional cuisines of India spanning various geographies and climates. Food pairing was enumerated at the level of cuisine, recipes as well as ingredient pairs by quantifying flavor sharing between pairs of ingredients.

Unit – I Indian cuisine

1.1Introduction to Indian cuisine.

1.2Factors affecting eating habits – Heritage of Indian cuisine.

1.3Philosophy of Indian food.

1.4Religious influences on Indian cuisine.

1.5Equipment used in Indian cuisine.

Unit – II

2.1Basic Indian gravies

2.2Masalas & pastes used in Indian cooking.

2.3Introduction of Regional cuisine of India.

2.4Hyderabad cuisine.

2.5Awadh cuisine.

Unit – III

3.1Bengal cuisine.

3.2Goa cuisine.

3.3Kashmir cuisine.

3.4Maharashtra cuisine.

3.5Punjab cuisine.

Unit – IV

4.1Rajasthan cuisine.

4.2Kerala cuisine.

4.3Festivals and occasion in Kerala.

4.4Tamilnadu cuisine.

4.5Festivals and occasion in Tamilnadu.

Unit – V Indian Sweets

5.1Introduction – Origin & history of Indian sweets.

5.2Ingredients used in Indian sweets.

5.3Regional influence of Indian sweets.

5.4Religious importance of Indian sweets.

5.5Equipment used in Indian sweets.

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Organization duties and responsibilities of ladder staff and different larder products.	**4**
CO - 2	The heritage of regional Indian cuisine availability of raw material and different community cuisine.	**7**
CO - 3	Know Religious importance of Indian sweets.	**4**
CO - 4	Preparation of models of Tamilnadu cuisine.	**4**

Text Books:

1. Cookbook of Regional Cuisines of India Hardcover – Abridged, Audiobook, Box set
   by Nita Mehta (Unit – I,II & III)
2. The Cuisines of India: The Art and Tradition of Regional Indian Cooking Hardcover – Import, 1 Aug 2001by Smita Chandra (Unit –IV & V)

REFERENCE BOOKS:

1. Food Production Operation – Parvinder s.bali.
2. Professional Cooking – Wayne Gisslen.
3. The Complete guide to Arts of fine Cooking – Arivind Saraswat – UBSPD.
4. Classical Recipes of the World – Henry Smith.
5. Food Fundamentals – Willam Margaret.
6. Cookery an Introduction – Caserani & Kinton and foskett.

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Core-VI: Beverage Service

Semester : III **Credit : 4**

Course Code: 18U3HM06 **Hrs/week : 5**

Course Objective: The course aims at preparing the students to subsequently understand and making them experts in Beverages.

UNIT – I Beverages

1.1Introduction

1.2Classification

1.3Non – alcoholic beverages

1.4Alcoholic beverage

1.5Beverage serving techniques

UNIT – II

2.1Water – Aerated -Non-Aerated - Refreshing drinks

2.2Nourishing drinks - Milk & Malt beverages

2.3Stimulating drinks (Coffee, Tea, Cocoa)

2.4Tea – type of tea – service of tea

2.5Coffee – types of coffee

UNIT – III

3.1Alcoholic beverages - Introduction - Classification

3.2Wines – Classification and production of each category

3.3Food and wine combination

3.4Storage of wine, Service of wine

3.5Wine producing countries of the world, including India

UNIT – IV

4.1Beer – Introduction - raw materials used in making a beer

4.2Types of Beer

4.3Manufacturing process of Beer

4.4Storage & Services of Beer

4.5Canned beer -Draught beer

UNIT – V

5.1spirit - definition

5.2Production of spirit (Pot still & Patent still method)

5.3Introduction and Classification of Whisky and Rum

5.4Introduction and Classification of Gin and Brandy

5.5Introduction and Classification of Vodka and Tequila

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Demonstrate practical ability in the service of a range of beverages	**2**
CO - 2	Observe the establishment conventions in the service of beverages	**5**
CO - 3	Learning Types of Sprits.	**7**
CO - 4	Identifying Storage & Services of Beer.	**2**

Text Books:

1. Food and Beverage Service Paperback – 2008 by Vijay Dhawan (Author) (Unit – I, II)
2. Food and Beverage Service By R. Singaravelavan Paperback – 15 Aug 2018 (Unit – III, IV, V)

REFERENCE BOOKS

1. Andrew Durkan & John cousins – The Beverage Book – Hodder & Stoughton
2. Sylvia Meyer, Eddy Schmid – Professional Table service – Van nostrad Reinhold
   (A division of International Thmson publishing INC)
3. Sudhir Andrews – Food and Beverage Service Training Manual – TMH

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Allied-III: Front Office Management

Semester : III **Credit : 3**

Course Code: 18U3HMA03 **Hrs/week : 4**

Course Objective: This course consists of the study of hotel front office procedures, including reservations, registration, posting to and settlement of accounts, balancing and auditing of ledgers, and generation of rooms division reports.

UNIT-I LOBBY

1.1Stages of guest contacts with the hotel-(Pre-arrival, arrival, during their Stay, departure)

1.2Procedures for left luggage

1.3Scanty baggage and safe deposit facility

1.4Guest mail and message handling

1.5Paging- Handling Guest complains

UNIT-II TELEPHONES

2.1Telephone operator - Qualities

2.2Telephone reservation procedure

2.3Registers used in telephone department

2.4Different telephone codes

2.5Wake-up call procedures

UNIT – III GUEST ACCOUNTING

3.1Guest accounting – Types and Maintenance of Guest Accounts

3.2Flow of guest accounting process

3.3Front office cashier - Job description

3.4Records & ledgers maintained by cashier

3.5Settlement of Accounts - Modes of payment

UNIT- IV NIGHT AUDITING

4.1Functions of night auditing

4.2Role and Job description of night auditor

4.3Preparation of Night audit report

4.4Operating modes - Verifying the night audit

4.5Night Audit process

UNIT – V YIELD MANAGEMENT

5.1Measuring yield in Hotel Industry

5.2Elements of yield management

5.3Benefits of yield management

5.4Yield management strategies

5.5Challenges or problems in yield management

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Understand the role and function of the Front of Office	**8**
CO - 2	Understand the importance of communication and knowledge of guests background	**6**
CO - 3	Know the procedures for checking in guests	**9**
CO - 4	Know about the challenges in yield management.	**6**

Text Books:

1. Front Office Management and Operations Paperback – 1 Jul 2017by Sudhir Andrews
   (Unit – I, II, III)
2. Textbook of hotel front office- management & operations (with Training Manual) Paperback – 2014 by Manoj Kumar Yadav (Unit – IV, V)

REFERENCE BOOKS

1. Hotel Front Office management – S.K. Bhatnagar
2. Effective Front Office operation- M. Kesavan
3. Hotel Front Office – Bruce Branham
4. Basic Hotel Front Office- Peter Franny Renner
5. Hotel and motel front Desk-Grace paige and Jane paige

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Elective-I: Principles of Tourism

Semester : III **Credit : 4**

Course Code: 18U3HME01 **Hrs/week : 5**

Course Objective: With this study, the students would gain knowledge on the diverse perspectives of Travel & Tourism operations and Tourism organizations.

UNIT – I

1.1Introduction to travel and tourism.

1.2Meaning - nature - definitions - basic components – elements.

1.3Technology and tourism.

1.4Types of Tourists- Visitor- traveler - and Excursionist.

1.5Tourism- recreation and leisure- their interrelationships.

UNIT – II

2.1 Tourism Organizations

2.2 The national tourist organization - role and function.

2.3 WTO- IATA- ICAO- PATA- FHRAI- UFTAA

2.4 Formation of ministry of tourism- department of tourism - tourism information Offices in India- its functions- tourism offices overseas

2.5 Role and functions of ITDC. TTDC

UNIT – III

3.1Tourism Marketing policy Marketing & tourism policy

3.2 Advertising & sales promotion the marketing policy

3.3 Tourism product, Travel agencies and operators

3.4Factors obstructing travel trade

3.5Demand for travel Tourist transport, travel trade Hotel marketing

UNIT – IV

4.1 Transportation

4.2 Tourist Transportation: Air transportation: The airline industry,

4.3 Surface Transport: Rent-a-car Scheme and Coach-Bus Tour- Fare Calculation.

4.4 Rail Transport

4.5 Water Transport: Historical past- cruise ships- ferries- hovercrafts- and river and Canal boats- Fly-cruise

UNIT-V

5.1 Tourism Promotion

5.2 Growth of tourism

5.3 Placement in Tourism Industry

5.4 Tourist destination in Tamilnadu and India

5.5 Internationals travel formalities –Passport-Visa

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Plan, lead, organize and control resources for effective and efficient tourism operations.	**9**
CO - 2	Create, apply, and evaluate marketing strategies for tourism destinations and organizations.	**6**
CO - 3	Apply relevant technology for the production and management of tourism experiences.	**5**
CO - 4	Develop and evaluate tourism policy and planning initiatives.	**8**

Text Books:

1. SMishra and B.B.Parida, Tourism Development Revisited: Concepts, Issues and Paradigms
   (Unit – I, II, III)
2. Textbook of Pretience Hall, New Jersey (with Training Manual) Paperback – 2014 by Manoj Kumar Yadav (Unit – IV, V)

Reference Books:

1. Tourism Principles and Practices. Pitman Burkart and Medlik,
2. Tourism: Past, Present and Future Heinemann, ELBS.
3. S. Babu , ,SMishra and B.B.Parida, Tourism Development Revisited: Concepts, Issues and Paradigms ,
4. Response Books Mill, R.C., Tourism: The International Business, Pretience Hall, New Jersey

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SBEC – I: Bakery and Confectionery

Semester : III **Credit : 2**

Course Code: 18U3HMS01 **Hrs/week : 2**

Course Objective: The course aims at preparing the students to subsequently understand and making them experts in preparing various Bakery Products.

UNIT – I

1.1 Basic principles of baking- Formulas & Measurement – Procedure

1.2 Gluten – Meaning, baker control of gluten.

1.3 Raw materials used in bakery products.

1.4 Selection of bakery equipments.

1.5 Baking process – expenses of fuels.

UNIT – II

2.1 Bread - Mixing methods (straight dough method- modified straight dough method for rich dough)

2.2 Bread – Types (White bread, milk bread, French bread, rye bread, ragi bread, multigrain)

2.3 Danish pastry – croissant – Techniques used and making.

2.4 Fillings & toppings for sweet dough products.

2.5 Make-up techniques – Hard rolls & breads-soft roll dough- sweet dough products- rolled in dough products.

UNIT – III

3.1 Sponges: Preparation methods- types.

3.2 Icings: Types (Fondant, butter creams, foam, flat, royal icings, marzipan,, meringues)

3.3. Glazes- fillings, assembling

3.4 Icing cakes: Selection of icing

3.5 Procedure for assembling layer cakes- small cakes and sheet cakes.

UNIT – IV

4.1 Cake Decoration: Colour- design- templates- texture- equipment.

4.2 Cookies: Characteristics & causes- mixing methods- types.

4.3 Biscuits – Introduction – Raw materials.

4.4 Biscuits types – Coconut biscuits, nut biscuits, cheese biscuits.

4.5 Pies - Types- mixing pie dough.

UNIT – V

5.1 Tarts & Tartlets - Preparation & types.

5.2 Puff pastry - Preparation & types.

5.3 Chocolate- types & uses (cocoa butter, white chocolate, milk chocolates, dark chocolates).

5.4 Traffles – Fondants – Glaced petit fours.

5.5 Macaroons preparation method and types.

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	The student will experience different baking procedures.	**4**
CO - 2	The student will discuss the various organizations of the hospitality industry.	**10**
CO - 3	Student will differentiate various baking and pastry service operations.	**4**
CO - 4	The student will integrate human management skills into the classes.	**7**

Text Books:

1. Bakery and confectionery, second edition (revised)yogambal ashokkumar (Unit – I,II)
2. The Bread Baker's Apprentice, 15th Anniversary Edition: Mastering the Art of Extraordinary BreadHardcover – Special Edition, 6 Sep 2016 by Peter Reinhart (Unit – III, IV, V)

REFERENCE BOOKS:

1. Professional Baking – Wayne Gisslen – John Wiley & Sons.
2. The New International Confectioner – Edited by Wilfred.J.Franc
3. Practical Baking – William.J.Sultan
4. The Book of Ingredients – Jain Grigson

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NMEC- I: Basic Cookery

Semester : III **Credit : 2**

Course Code: 18U3HMN01 **Hrs/week : 2**

Course Objective: This Non- Major Elective course aims at preparing other major students to learn the basic Professional Cookery.

UNIT-I

1.1 Introduction to Culinary Arts

1.2 Aims & Objectives of Cooking

1.3 Personal Hygiene

1.4 Kitchen Hygiene

UNIT-II

2.1 Classification of Raw Materials

2.2 Salt, Sugar, Liquid, Thickening Agents

2.3 Egg, Herbs, Spices & Condiments

2.4 Various Cooking Methods

UNIT-III

3.1 Classification and Selection of fruits

3.2Vegetables- Classification and Selection

3.3 Meat, fish - Selection

3.4 Cuts of meat & fish

UNIT-IV

4.1 Egg - Salads - Sandwich

4.2 Briyani - Paulo

4.3 Sweets

4.4 Dessert

UNIT-V

5.1 Menu planning

5.2 Types of Menu

5.3 Accompaniments

5.4 Garnishes

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Identify various cooking techniques.	**4**
CO - 2	Maintain positive relations with others cooperate through teamwork and group participation.	**1**
CO - 3	Identify and properly operate equipment & common culinary hand tools.	**5**

Text Books:

1. Parvinder S.Bali, Food Production Operations, Oxford University, 2011 (Unit – I & II)

2. Theory of Cookery by Krishna Arora (Unit – III, IV & V)

REFERENCE BOOKS:

1. Larousse Gastronomique cookery encyclopedia by paul hamlyn
2. Chef's Manual of Kitchen Management – John Fuller.

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Practical- III: Beverage Service Practical

Semester : III **Credit : 2**

Course Code: 18U3HMP03 **Hrs/week : 3**

Course Objective: This module aims to acquaint the students with service methods of Alcoholic beverages, wines, beer, spirits, and their brand names.

1. Enumeration of glassware.
2. Beverage order taking procedure
3. Service of Non Alcoholic Beverages
4. Compiling a menu with wine suggestions and service method
5. Service of beer
6. Service of brandy
7. Service of whisky
8. Service of gin
9. Service of vodka
10. Service of rum
11. Service of tequila

Text Books:

1. Food and Beverage Service Paperback – 2008 by Vijay Dhawan (Author)
2. Food and Beverage Service By R. Singaravelavan Paperback – 15 Aug 2018

REFERENCE BOOKS

1. Andrew Durkan & John cousins – The Beverage Book – Hodder & Stoughton
2. Sylvia Meyer, Eddy Schmid – Professional Table service – Van nostrad Reinhold (A division of International Thmson publishing INC)
3. Sudhir Andrews – Food and Beverage Service Training Manual – TMH

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Practical- IV: Regional Cuisine of India Practical

Semester : III **Credit : 2**

Course Code: 18U3HMP04 **Hrs/week : 3**

Course Objective: knowledge of Indian regional food, ingredients & spices study of various regional's cuisines.

1. Punjabi
2. Guajarati
3. Kashmiri
4. South Indian
5. Goa
6. Bengali
7. Maharastrian
8. Meghalaya
9. Rajasthan

REFERENCE BOOKS:

1. Food Production Operation – Parvinder s.bali.
2. Professional Cooking – Wayne Gisslen.
3. The Complete guide to Arts of fine Cooking – Arivind Saraswat – UBSPD.
4. Classical Recipes of the World – Henry Smith.
5. Food Fundamentals – Willam Margaret.
6. Cookery an Introduction – Caserani & Kinton and foskett.

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Core-VII: Advanced Culinary Arts

Semester : IV **Credit : 4**

Course Code: 18U4HM07 **Hrs/week : 5**

Course Objective: After completion of this course, students will be able to know the advanced techniques followed in cookery

UNIT – I

1.1Larder: Essentials of larder control

1.2Importance and functions of larder in main kitchen

1.3Relationship with other section of main kitchen

1.4Duties and responsibilities of Larder chef- Equipments and tools used in larder

1.5Floor plan or layout of a larder.

UNIT – II

2.1Force meat: Meaning, uses, types and recipes.

2.2Panada: Meaning, uses, types and recipes.

2.3Compound Butters: Meaning, uses, types and recipes and examples.

2.4Marinade: Different types and uses. - Brine: Types and uses. - Aspic jelly: Uses and preparation.

2.5Chaud Froid: Uses and preparation. - Salami & Sausages – importance - types

UNIT – III

3.1Garnishes: Importance

3.2Names of garnishes used with soup, fish, beef, veal, poultry and game.

3.3Cold Preparation: Galantine.

3.4Ballotine, terrine, Pate terrine

3.5Mousse, soufflé, mousselines etc. Recipes for the above.

UNIT – IV

4.1Kitchen organization: Allocation of work – Job description

4.2Duty rosters

4.3Production planning, production scheduling

4.4Production quality & quantity control

4.5forecasting, budgeting

UNIT – V

5.1Kitchen Management: Objectives

5.2Meal production, indenting, purchasing, storing, cost control

5.3Yield, portion control.

5.4Standard Recipe – Importance of standard recipe. Advantages and disadvantages.

5.5Left over utilization.

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Prepare sauces, soups and stocks.	**4**
CO - 2	Study and prepare dishes from various ethnic cuisines of the world	**1**
CO - 3	Various other cuisines as dictated by student interest.	**1**
CO - 4	Examine careers in the Culinary and Hospitality fields.	**4**

Text Books:

1) Food Production Operations, Parvinder S.Bali, Oxford University Press, 2009 (Unit -I,II)

2) International Cuisine and Food Production Management, Oxford University Press

Parvinder S.Bali, 2013 (Unit – III & IV)

3) Art of Garde Manger,Frederic Sonnenschmidt, John Wiley & Sons, 1993 (Unit – V)

REFERENCE BOOKS:

1. Practical cookery – Ronald Kinton & Victor Ceserani – Hodder Starghton.
2. Theory of Catering - Ronald Kinton & Victor Ceserani – Hodder Starghton.
3. Food & Beverage Management – Bernard Davis & Sally stone – ELBS.
4. The Professional Chef (IV Edition) – Le Roi A. Polsom.
5. Larousse Gastronomique – Cookery Encyclopedia – Paul Hamyln.
6. The Book of Ingredients – Jain Grigson

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Core-VIII: Accommodation Management

Semester : IV **Credit : 4**

Course Code: 18U4HM08 **Hrs/week : 5**

Course Objective: The students able to identify the role of managers in the hospitality industry and to highlight their principal responsibilities.

UNIT: I Planning the House Keeping Department

1.1Area inventory list - Frequency schedules.

1.2Performance and Productivity standards.

1.3Time and Motion study in House Keeping operations.

1.4Standard Operating Procedures

1.5Planning duty rosters

UNIT: II Organizing the House Keeping Department

2.1Job procedures- Job allocation and work schedules.

2.2Team work and Leadership in House Keeping.

2.3Man power planning- Cost control

2.4Training in the Housekeeping

2.5Performance appraisal

UNIT: III Contract Service

3.1Introduction-Types of contract service

3.2Guidelines for hiring contract service

3.3Advantage and disadvantage of contract service

3.4Procedure of contract service

3.5Dealing with emergency situation

UNIT: IV Linen

4.1Introduction –storage condition

4.2Types of linen-Equipments

4.3Exchange of linen

4.4Uniform-Exchange procedure

4.5Inventory control

UNIT: V Layout of Guest Room

5.1Lay out of different guest room

5.2Types of guest room-Refurnishing

5.3Guest room features

5.4Size and furniture's in guest room

5.5Furniture's arrangement

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	knowledge about the operation and management of the uniform	**3**
CO - 2	Knowledge about the role of executive housekeeper for proper administration	**7**
CO - 3	understanding about man power planning and evaluation of job performance	**9**
CO - 4	the principles & procedures to be observed to maintain	**3**

Text Books:

1. Accommodation Management Paperback – 24 Sep 1984 by Rosemary urst (Author) **(Unit – I,II & III)**
2. Sudhir Andrews, Hotel Housekeeping Training manual, Tata Mac Graw Hill,2007 **(Unit – III, IV & V)**

REFERENCES

1. Hotel Hostel and Hospital Housekeeping – Joan C Branson & Margaret Lennox (ELBS)
2. Managing Housekeeping Operations – Margaret Kappa & Aleta Nitschke
3. Hotel House Keeping – Sudhier Andrews Publisher: Tata McGraw Hill.
4. The Professional Housekeeper – Tucker Schneider, Publisher: VNR.
5. Professional Management of Housekeeping Operations- Martin Jones, Publisher: Wiley & Sons

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NMEC-II: Basic Hospitality Operation

Semester : IV **Credit : 2**

Course Code: 18U4HMN02 **Hrs/week : 2**

Course Objective: The hospitality industry consists of a range of service providers that includes bars, restaurants and lodging establishments. A wide spectrum exists within these categories.

UNIT-I

1.1. Introduction to Hotel Industry and Various Departments in Hotel and Their functions

1.2. Evaluation & growth of Hotel industry

1.3. Organization Structure of Hotels.

1.4. Different Types of Plans in a Hotel.

1.5. Menu - Definition (Menus followed in various Catering Establishments)

UNIT-II

2.1. Aims and Objectives of Cooking Food.

2.2. Methods of Cooking.

2.3. Equipments and Utensils used in the Food Production Department.

2.4. Preparation of Ingredients.

UNIT-III

3.1. Importance of Front Office Department.

3.2. Organization Structure of Front Office Department

3.3 Duties and Responsibilities F.O staff

3.4. Types of Rooms and their Reservation & Cancellation Procedure.

UNIT-IV

4.1. Importance of Housekeeping Department.

4.2. Organization structure of Housekeeping Dept - Duties and Responsibilities of Personnel

4.3. Cleaning Equipments and Agents used in Housekeeping Dept.

4.4. Procedure for Cleaning Rooms & Public area.

UNIT-V

5.1. Importance of Food & Beverage Service Department.

5.2. Organization structure of Food & Beverage Service Dept and Responsibilities of Personnel

5.3. Attributes and attitudes of a Good Waiter.

5.4. Different Types of Cutlery, Crockery and Glassware used in F&BS

5.5. Types of Service.

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Perform activities associated with setting up, monitoring, controlling, marketing and improving hospitality services	**9**
CO - 2	Demonstrate understanding of the operations performed within the hospitality industry	**6**
CO - 3	Effectively change plans, goals, actions, or priorities to deal with changing situations.	**2**

Text Books:

1. Accommodation Management Paperback – 24 Sep 1984 by Rosemary urst (Author) (Unit – I, II & III)
2. Front Office Management and Operations Paperback – 1 Jul 2017by Sudhir Andrews (Unit – IV, V)

Reference Books:

1. Modern Cookery for Teaching and Trade – Vol.I & II – Thangam E-Philip (Orient Longman Publications)
2. Theory of Cookery – Krishna Arora (Frank Brothers & Company, New Delhi)
3. The Theory of Catering – Kinton & Ceserani (ELBS Publications)
4. Food and Beverage Service Training Manual – Sudhir Andrews (Tata Mc.Graw Hill Publications)
5. Food & Beverage Service – Lillicrap & Johncousins.

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Practical -V: Continental cuisine

Semester : IV **Credit : 2**

Course Code: 18U4HMP05 **Hrs/week : 3**

Course Objective: After completion of this course, students will be able, to subsequently understand and become themselves experts in preparing continental dishes

S.No	Topic	Method
1.	Identification, Selection and processing of Meat, Fish and poultry. Slaughtering and dressing	Demonstration
2.	**Starters :** • Prawn cocktail • Tomato a la Monegasque • Oeuf Farcis • Spring rolls • Chicken lollypops • Chicken satay • Florida cocktail • Melon Frappe	
3.	**Soups:** • Minestrone soup • Scotch broth • Potage St.Germain • Gazpacho • Cream of Tomato • Leek and potato soup • Lentil Mulugutwany soup • Cabbage chowder	

4.	**Main courses:** • Poulet a la Rex • Poulet saute chasseur • Poulet saute Maryland • Chicken chimichangas with pepper salsa • Pomfret colbert • Pomfret Portugaise • Fish in garlic sauce • Chicken Manchurian • Roast beef • Chilli chicken • Beef Strognoff • Hungarian goulash • Grilled fish with tartare sauce	
5.	**Accompaniments** • Glazed carrots • Spinach au beurre • Ratatouille • Courge provencale • Cauliflower au gratin • Melanzane Parmigiana • Roesti • Roast potatoes • Parsley potatoes	Menu be prepared and practice by students
6.	**Salads** • Carrot and celery • Russian salad • Caesar salad	

	• Cole slaw • Som tam • Tossed salad • Waldrof salad • Roasted corn & bean salad • Beetroot salad • Macroni & bell pepper salad	
7.	Pasta varieties	
8.	Rice varieties	
9.	Egg varieties	
10	Vegetable preparation	
11.	**Sweets/Desserts** • Caramel custard • Bread & butter pudding • Christmas pudding • Fruit Trifle • Moss Jelly with custard sauce • Coffee mousse	

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Practical -VI: Accommodation Operation Practical

Semester : IV **Credit : 2**

Course Code: 18U4HMP06 **Hrs/week : 2**

Course Objective:

After completion of this course, students will be able, to subsequently understand and become themselves experts in Accommodation operation.

1. Identification of Cleaning Equipment.
2. Identification of Cleaning Agent.
3. Identification of different linen.
4. Standard Amenities for guest room, VIP room and Bathroom supplies.
5. Bed Making Procedure.
6. Maid trolley and their Types.
7. Identification of Stain and Stain Removal.
8. Pest control.
9. Flower arrangement.
10. Duty Rota preparation for Housekeeping department.

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Core-IX: Food and Beverage Management

Semester : V **Credit : 4**

Course Code: 18U5HM09 **Hrs/week : 6**

Course Objective: Help to prepare students to meet the challenges associated with the Food and Beverage Industry. Students will gain a basic understanding of the Food and Beverage industry by analyzing the industries.

UNIT – I

1.1Cost Control: Objective and Elements of Cost - Classification of Cost

1.2Purchasing control - Aims of purchasing policy

1.3Job description of purchase manager and personnel

1.4Standard yield and standard purchasing specification

1.5Different methods of purchasing

UNI T – II

2.1Receiving - Aims & Equipment required for receiving. - Goods received book - Daily receiving report - meat tags. - Receiving procedure - Blind receiving

2.2Storing control - Aim of store control - Job description of food store room clerk

2.3Stock control - types of food received - Direct stores (Perishables/Non Perishables)

2.4Stock records maintained -Bin card - Stock record cards/ books.

2.5Issuing control - Requisition - Perpetual inventory - Stock taking - pricing of Commodities.

UNIT – III

3.1Production control - Aim of Production control - Forecasting

3.2Fixing of Standard - Standard quantity - Standard purchase specification

3.3Standard portion Size - Various equipments used.

3.4Menu Merchandising - Menu control - Menu structure - Pricing of menus - Types of menu

3.5Menu Planning - Menu as marketing level - Menu layout - Constraints of menu planning.

UNIT – IV

4.1Sales control – Determine and Calculation of selling price

4.2Factors to be considered while fixing selling price

4.3Matching the cost with sales - Billing procedure - Cash and credit sales

4.4Budgetary Control - Define Budget and Budgetary Control - Objectives - Frame Work Key Factors - Types of Budget

4.5Labor cost control - staffing - payroll - overtime

UNIT – V

5.1Advertising - overview identifying the media - Layout and design of the advertisement

5.2Highlighting the message - target audience

5.3Promoting - food and wine display - telephone selling - persuasive and suggestive selling

5.4Guest handling - identifying the guest needs - maintaining the guest history card and records

5.5Special occasions - type of special occasions - creativity and innovation - special menu

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Contribute to the team working requirements of the establishment.	**7**
CO - 2	Classify the types of food and beverage operations.	**5**
CO - 3	Know the difference of food and beverage operations management.	**2**
CO - 4	Knows the techniques of advertising and personal selling.	**5**

Text Books:

1. Food and Beverage Management Paperback – 1 Jul 2017 by Sudhir Andrews **(Unit – I, II & III)**
2. Food and Beverage Management Bernard Davis, Andrew Lockwood, Sally Stone Butterworth-Heinemann, 1998 **(Unit – VI & V)**

Reference Books

1. Costas Katsigris, Mary Porter, Chris Thomson – The Bar & The Beverage Book – Johnwiley & Sons INC
2. Dr. Jagmohan Negi – Professional Food & Beverage Management
3. Bernad Daris and Sally Stone – Food & Beverage Management – ELBS
4. Brian Verghese – Professional Food & Beverage Management – Franc Bros & Co. Ltd
5. Food and beverage service. Lilli crap

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

Core – X: TRAVEL AND TOURISM

Semester : V **Credit : 4**

Course Code: 18U5HM10 **Hrs/week : 6**

Course Objective: After completion of this course, the student will be able to comprehend the nature and existence of tourism in India and functions of government and tourism organizations

UNIT – I Tourism and Indian Economy

1.1 Contribution of Tourism in Indian Economy

1.2 Role of Govt. in Tourism Industry – Central and State Governments Hierarchy with functions

1.3Incentives / Subsidies and tax from Central / State Governments for Tourism and Hotel projects

1.4Role of Private sectors in Tourism Industry

UNIT – II Tourism Information

2.1 Tourism information - Distribution channels

2.2 Media– Print media, Visual media

2.3 Passport, visa, types of visa, visa obtaining procedures

2.4 Visa and Certificate of registration regulations for Foreigners in India

UNIT – III Tourism Agencies

3.1 Historical development of travel agencies Cox & Kings, American Express

3.2 Role of Tourism organizations – UNWTO – PATA – IATA – ICAO – TAAI

3.3 Tourism agencies in India – SITA, Mercury Travels, TCI, and its functions

3.4 Air ticketing – Reservation – Types of Air fare – Calculation

UNIT – IV Airlines – Historical Development

4.1 Need for a National Airline; International Airlines coming to India

4.2 Freedom of Air

4.3 Charters – Types of Charters

4.4 Check-in formalities of domestic and International Airports

Selvamm Arts & Science College (Autonomous) Namakkal

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B.Sc., HMCS

UNIT-V Tourism in South India

5.1 Religious Tourism in Tamil Nadu, Pondicherry

5.2 Tourist Festivals in Tamil Nadu, Pondicherry

5.3 Hill resorts – Beach resorts

5.4 Theme resorts – Adventure tourism

5.5 Tourist important places in Andhra Pradesh, Karnataka, Kerala and Pondicherry

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	*Emerging tourism trends in India.*	**8**
CO - 2	Identifies the difference between characteristics of goods and services.	**9**
CO - 3	Ability to analyze the contributions of tourism	**6**
CO - 4	Acquire knowledge in development of air transport	**9**

TEXT BOOKS:

1: Tourism Principles and Practices, Sampad Kumar Swain & Jitendra Mohan Mishra (Unit – I, II & III)

Oxford University press, 2013.

2: Tourism Operations and Management, Oxford University Press (Unit – IV,V)

Reference Books:

1. Tourism Principles and Practices Pitman Burkart and Medlik,
2. Tourism: Past, Present and Future Heinemann, ELBS.
3. S. Babu , ,SMishra and B.B.Parida, Tourism Development Revisited: Concepts, Issues and Paradigms ,
4. Response Books Mill, R.C., Tourism: The International Business, Pretience Hall, New Jersey

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

Elective-III: Hotel Engineering

Semester : V **Credit : 3**

Course Code: 18U5HME03 **Hrs/week : 5**

Course Objective: Hotel Maintenance Engineer Primarily Revolve Around Addressing Repair Needs And Completing Work Orders In A Timely Fashion. Specific Responsibilities Can Include Repairs On Electrical, Plumbing, Heating, Ventilation, And Air Conditioning Systems Among Others.

UNIT – I

1.1Role and importance of Maintenance Department in hotel industry of the hotel

1.2Organizational chart of maintenance department

1.3Duties and responsibilities of maintenance department

1.4Maintenance – Preventive and break-down maintenance

1.5Fuels used in catering industry:

UNIT – II

2.1Gas: Heat terms and units method of transfer- LPG and its properties

2.2Precaution to be taken while handling gas - low and high pressure burners

2.3Electricity: Importance and its uses.

2.4Electric power rate schedules - Meter reading and bill calculations.

2.5Earthling: Meaning and its importance and method of earthling.

UNIT – III

3.1Water system management - Sources of water and its quality

3.2Elements of water system - Sanitary systems:

3.3Sink- basins- WC- inspection chambers- soiled pipes- water taps.

3.4Waste disposal: Solid and liquid waste

3.5Silage and sewage- disposal of solid waste- sewage treatment

UNIT – IV

4.1Refrigeration: Principles and uses of refrigeration in catering industry.

4.2Walk-in coolers and freezers - Care and maintenance of refrigeration systems

4.3Conditions for comfort: Air movement- humidity control- ventilation methods

4.4Air-conditioning: Types Energy conservation:

4.5Energy conservation barriers; methods of conserving electrical and water energy

UNIT – V

5.1Transportation systems: Passenger elevators- freight elevators

5.2Side-walks – Operations and their maintenance

5.3Fire prevention and fire protection: Meaning of fire

5.4Different types of fire- fire hazards- fire extinguishers- fire alarm systems - Pollution control Water pollution- thermal pollution and sewage pollution.

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Consider the impact of facility design on facility management.	**6**
CO - 2	Consider maintenance management systems.	**7**
CO - 3	Justify personnel management in maintenance.	**9**
CO - 4	Compare and justify costs associated with hospitality facilities.	**8**

TEXT BOOKS:

1. Hotel Engineering (Oxford Higher Education) Paperback – 10 Feb 2011 by Sujit Ghosal (Author) Unit (I, II)
2. Text Book Of Hotel Engineering Paperback – 2015 By Prof. R.C. Gupta (Author) Unit (III, VI, V)

REFERENCE BOOKS:

1. Hotel Engineering & Maintenance in Hospitality Industry – Frank M Borsenik – Van Nostrand Reinhold
2. Principles of Hospitality Engineering – John D.Palmer – Van Nostrand Reinhold
3. Theory of catering – Ronald Kinton & Victor Cesarani – ELBS.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

Core-XIII: International Culinary Arts

Semester : VI **Credit : 4**

Course Code: 18U6HM13 **Hrs/week : 5**

Course Objective: Culinary art is a term that refers to the presentation and preparation of food items. Students who take up this course are usually interested in preparing meals and have a flair for flavors.

UNIT – I

Indian Cookery

1.1Introduction to regional cooking

1.2 factors affecting eating habits Heritage of Indian cuisine

1.3different Regional cuisine of India

1.4Cooking from different states under geographical location - historical background- availability of raw materials (seasonal- equipment and fuel - staple diet)

1.5States to be covered - Kashmir, Punjab, Uttar Pradesh

UNIT – II

Indian Cookery

2.1States to be covered – Gujarat, Rajasthan, Madhya Pradesh, Maharashtra, Goa

2.2States to be covered - Kerala, Andhra Pradesh, Karnataka & Tamilnadu

2.3Foods prepared for festivals and occasions.

2.4Indian breads and Indian snacks

2.5Indian sweets.

UNIT – III

Oriental Cuisine

3.1Thai cuisine: Characteristics, Ingredients used.

3.2Chinese cuisine: Characteristics- preparation & cooking techniques - utensils and ingredients used

3.3Regional styles of Chinese cooking - examples of Chinese dishes.

3.4Japanese cuisine - preparation & cooking techniques- utensils and ingredients used.

3.5French cuisine - Characteristics- preparation & cooking techniques

UNIT – IV

Middle East Cuisine

4.1Arab cuisine- history- culture- structure of meals

4.2Ramadan meals and regional Arab cuisines

4.3Lebanese & Syrian cuisine Special ingredients – Special dishes

4.4Palestine cuisine - utensils and ingredients used.

4.5Egyptian cuisine - Characteristics- cooking technique

UNIT – V

Western Cuisine

5.1Mexican cuisine - characteristics- ingredients used

5.2Examples of Mexican dishes.

5.3Italian Cuisine: Characteristics, main ingredients used

5.4Pasta & Noodle, Examples of Italian dishes.

5.5American cuisine- characteristics- ingredients used - examples of American dishes.

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Analyze contemporary business and financial issues of a professional kitchen.	**4**
CO - 2	Operate both independently and as a team member in a professional kitchen environment.	**7**
CO - 3	Recognize the value of diversity in opinions, values, abilities and cultures in a professional kitchen environment.	**8**

TEXT BOOKS:

1. On Cooking: A Textbook of Culinary Fundamentals Hardcover – 4 Jan 2010 by Sarah R. Labensky (Author), Priscilla A. Martel (Author), Alan M. Hause (Author) Unit (I,II)
2. Culinary Arts: A Guide to the Literature (April 2016): Standard Culinary Textbooks By Jeffrey P. Miller and Jonathan Deutsch Unit (III,VI,V)

REFERENCE BOOKS:

1. Larousse Gastronomique – Cookery Encyclopédie – Paul Hamyln.
2. Professional Cooking – Wayne Gisslen
3. Professional Chef, the Art of Fine Cooking – Arvind Saraswat – UBSPD.
4. The Complete Guide to Art of Modern Cookery – Escoffier.
5. Italian Cooking For Pleasure – Mary Reynolds.
6. Practical Professional Cookery - Cracknell & Kaullmann.
7. Contemporary Cookery – Caserani & Kinton and Foskett.
8. Classical Recipes of the World – Henry Smith.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

Core-XIV: Bar Management

Semester : VI **Credit : 3**

Course Code: 18U6HM14 **Hrs/week : 5**

Course Objective: To obtain a bartending position at Resort & Spa where my outgoing attitude, seven years of bartending experience, attention to detail, and commitment to workplace safety and cleanliness can contribute to the hotel's success.

UNIT-I

1.1Bar operations - Introduction - types of bar

1.2Bar area and layout - Design space - Tools and equipments

1.3Bar check list - guest comment card - Opening and closing of the bar

1.4Bar menu - Preparation of bar operation

UNIT-II

2.1Staff organization in bar - job description of bar staff - briefing of bar staff

2.2Customer care - handling drunken customer - Handling loss of customers property

2.3Bar service standards - order taking and service in the bar

2.4Technique of serving alcoholic beverage - handling of fault wine

UNIT-III

3.1Bar control - Purchasing - Receiving - Storing – Issuing

3.2Bar sales - How to increase bar sales

3.3Bar frauds - record and Books maintained - Beverage control.

3.4Bar spoilage - Bar costing- bar procedures

UNIT-IV

4.1Cellar control - bin cards - bar consumption register

4.2How to operate a successful Cellar - Cellar requirements - Cellar control procedures

4.3Bar legislation and legal provisions - salient features of excise provisions

4.4Permitted laws - general regulations - service and dispensing - age restrictions

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Department of Hotel Management and Catering Science

B.Sc., HMCS

UNIT-V

5.1Cocktails - basic categories and types - parts of cocktails

5.2Preparation methods - recipes

5.3Mock tails - Preparation methods - recipes

5.4Juggling - Art of Juggling.

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Demonstrate a logical and efficient method of working	**2**
CO - 2	Adopt appropriate liaison with other staff working within the food and beverage areas	**7**
CO - 3	Operate within in legal requirements governing the sale of alcoholic beverages	**6**
CO - 4	Deal with customer requirements and special requests as they arise	**5**

TEXT BOOKS:

1. Bar Management & Operations Mass Market Paperback – 1 Dec 2010 by Gajanan Shirke (Author) Unit (I,II)
2. The Bar and Beverage Book: Basics of Profitable Management (Wiley Service Management Series) 2nd Edition by Costas Katsigris (Author), Mary Porter (Author) Unit (III,VI,V)

REFERENCE BOOK

1. How to operate a successful Bar. By Christopher Egeston Thomas. Publisher –John Wiley & Sons
2. The restaurants from concept to operation by John Walker & Donaland. Publisher – John Wiley & Sons
3. Food & Beverage management by Bernard Davis & Hundberg & Sally Stone. Publisher – Heinemann Publications
4. Bar management and control by Dr.B.K. Chakravarthi -APH Publication corporation

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

Core-XVI: Resort Management

Semester : VI **Credit : 3**

Course Code: 18U6HM16 **Hrs/week : 5**

Course Objective: After finishing this course the student can be able to understand the Administration and Management of Club / Resorts.

UNIT – I Introduction

1.1 History and types of Resorts

1.2 Management

1.3 Segment of Markets Time share owner

1.4 The development process

1.5 Development an Amenity Strategy

1.6 Management and Operation

UNIT – II Types of resorts

2.1 Mountain based

2.2 Water based

2.3 Marketing the Resort Experience

2.4 Marketing defined

2.5 Development of Marketing Plan

2.6 Managing the Market Place

UNIT – III Guest Activities and Programs and Format

3.1 Market influences

3.2 Guest needs

3.3 Needs assessment

3.4 Define goal and objectives

3.5 Cluster and activities analysis

3.6 Program Management and Evaluation

3.7 The layout & Design

UNIT – IV the Management Process

4.1 Managing the human resources

4.2 Budget process

4.3 Revenue generation and profitability

4.4 Development of a risk management plan

UNIT – V The future of Resort

5.1 The shaping of the tomorrow's Resort

5.2 Creating the Total Resort Experience

5.3 Trends in the Resort development

5.4 Implication for Resort Communities

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Identify and define important concepts related to the successful management and operation of hotels and resort.	**7**
CO - 2	Describe and identify foundational cooking tools, techniques and ingredients used in the professional kitchen.	**4**
CO - 3	Have a clear sense of the purpose of leadership, the ethical dimensions of leadership, and the relationship between leaders and followers.	**7**
CO - 4	Demonstrate work and career preparation and understanding of professionalism within the hospitality industry.	**8**

TEXT BOOKS:

1. Resorts: Management and Operation Robert Christie Mill John Wiley & Sons, 02-May-2008 - Business & Economics **Unit (I,II)**
2. Hotel Design: Planning and Development Walter A. Rutes,Richard H. Penner,Lawrence Adams **Unit (III,VI,V)**

Reference Book

1. Robert Christie Mill Resorts: Management and Operation John Wiley & SonsThomas H. Sawyer, Owen Smith

2. The Management of Clubs, Recreation, and Sport: Concepts and Applications Sagamore Publishing Inc. Joe Perdue, Rhonda J. Montgomery, Patti J Shock, And John M. Stefanelli

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

Core-XVII: Hospitality Marketing

Semester : VI **Credit : 3**

Course Code: 18U6HM17 **Hrs/week : 5**

Course Objective

After completion of this course, students will be able to understand the need and significance of marketing practices in development of hotel industry.

Unit-I Introduction to Marketing

1.1 Introduction: Concept, nature, scope and importance of Hospitality marketing

1.2 Hospitality Marketing concept and its evolution; Marketing mix; Overview of Strategic Marketing planning

1.3 Market Analysis and Selection: Marketing environment – macro and micro components and their impact on marketing decisions.

1.4 Market segmentation and positioning; Buyer behavior; consumer versus organizational Buyers; Consumer decision making process.

Unit-II Product & Pricing Decisions

2.1 Product Decisions: Concept of a product

2.2 Classification of products; Major product decisions

2.3 Product line and product mix; Branding; Packaging and labeling

2.4 Product life cycle –strategic implications; new product development and consumer adoption Process.

2.2 Pricing Decisions: Factors affecting price determination; Pricing policies and strategies; Discounts and rebates.

Unit-III Distribution Channels

3.1 Distribution Channels and Physical Distribution Decisions: Nature, functions

3.2 Types of distribution channels

3.3 Distribution channel intermediaries; Channel management decisions; Retailing and Wholesaling.

3.4 Promotion Decisions: Communication Process; Promotion mix – advertising, personal Selling, sales promotion, publicity and public relations;

3.5 Determining advertising budget; Copy designing and testing; Media selection; Advertising Effectiveness; Sales promotion – tools and techniques.

Unit-IV Marketing Research

4.1 Hospitality Marketing Research: Meaning and scope of marketing research;

4.2 Marketing research process.

4.3 Marketing Organization and Control

4.4 Organizing and controlling marketing operations.

Unit-V Marketing of services and International marketing

5.1 Issues and Developments in Marketing: Social, ethical and legal aspects of marketing

5.2 Marketing of services

5.3 International marketing; Green marketing; Cyber marketing

5.4 Relationship marketing and other developments of marketing.

CO No	Upon completion of this course, Students will be able to	PSOs Addressed
CO - 1	Evaluate the organization and function of the hospitality industry at the end of the two year program.	**9**
CO - 2	Assess the leadership, supervisory and human relations skills within the hospitality industry.	**7**
CO - 3	Practice effective sales techniques and procedures including marketing, public relations, and entrepreneurship within the industry specific techniques.	**6**
CO - 4	Practice marketing sales and business promotion techniques.	**8**

TEXT BOOKS:

3. A Textbook for the Hospitality Industry Paperback – 25 Jun 2009 by Sudhir Andrews (Author) Unit (I, II)
4. Hospitality Marketing and Consumer Behavior: Creating Memorable Experiences 1st Edition Vinnie Jauhari Unit (III, VI,V)

REFERENCE BOOK

1. Hospitality Sales and Marketing, Sixth Edition, Author: James R. Abbey, Ph.D., CHA, and University of Nevada.
2. Hospitality marketing, Author: Neil Wearne and Alison Morrison published 2011 by Roulade.
3. Tourism Development - A.K.Bhatia
4. Marketing Management – S.A. Sherlekar

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

Practical -VIII: International Cuisine

Semester : VI **Credit : 2**

Course Code: 18U6HMP08 **Hrs/week : 3**

Course Objective:

After completion of this course, students will be able to compile menus and prepare Different dishes in various cuisine of the world Three course menus to be formulated featuring International Cuisines

Suggested Menus **CHINESE**

MENU 01 Consomme Carmen Poulet Saute Chasseur Pommes Loretta Haricots Verts Salade de Betterave Brioche Baba au Rhum	**MENU 06** Barquettes Assortis Stroganoff De Boeuf Pommes Persilles Salade De Chou-cru Garlic Rolls Crepe Suzette	**MENU 01** Prawn Ball soup Fried Wantons Sweet & Sour Pork Hakka Noodles
MENU 02 Bisque D'ecrevisse Escalope De Veau viennoise Pommes Batailles Courge Provencale Epinards au Gratin	**MENU 07** Duchesse Nantua Poulet Maryland Croquette Potatoes Slade Nicoise Brown Bread	**MENU 02** Hot & Sour soup Beans Sichwan Stir F0ried Chicken & Peppers Chinese Fried Rice
MENU 03 Crème Du Barry Darne De Saumon Grile Sauce paloise Pommes Fondant Pettis Pois A La Flamande French Bread	**MENU 08** Pate Des Pommes Knomeskies Filet De Sols Walweska Pommes lyonnaise Funghi Marirati Bread Sticks	**MENU 03** Sweet Corm Soup Shao Mai Tung-Po Mutton Yangchow Fried Rice

Tarte Tartin	Souffle ;Milanaise Vol-Au-Vent-De Volaille Et - 53 -	
MENU 04 Veloute Dame Blanche Cote De Porc Charcuterie Pommes De Terre A La Crème Carrotes Glace Au Gingembre Salade Verte Harlequin Bread Choclate Cream Puffs	**MENU 09** Jambon Homard Thermidor Salade Waldorf Vienna rolls Mousse Au Chocolate	**MENU 04** Wanton Soup Spring Rolls Stir Fried Beef & Celery Chow Mein
MENU 05 Cabbage Chowder Poulet A La Rex Pommes Marguises Ratatouille Slade De Carottees Et Celeris Clover Leaf Bread Savarin Des Fruits	**MENU 10** Crabe En Coquille Quiche En Coquille Quiche Lorraine Salade de Viande Pommes Parisienne Foccacia Crème Brulee	**MENU 05** Prawns in Garlic Sauce Fish Szechwan Hot & Sour Cabbage Steamed Noodles

Reference Books:

1. Klinton & Cesarani : Practical Cookery Arnold Heinemann.
2. Larousse Gastronomique cookery encyclopedia by paul hamlyn.
3. Chef's Manual of Kitchen Management – John Fuller.
4. Le repertoire de la cuisine – l. Saulnier.

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

Practical -IX: Bar Management

Semester : VI **Credit : 2**

Course Code: 18U6HMP09 **Hrs/week : 2**

Course Objective:

To obtain a bartending position at Resort & Spa where my outgoing attitude, seven years of bartending experience, attention to detail, and commitment to workplace safety and cleanliness can contribute to the hotel's success.

1. Compiling a alcoholic beverage list
2. Service of Wines
3. Service of Specialty coffee
4. Service of Liquors
5. Preparations of Mock tails
6. Service of Mock tails
7. Preparations of cocktails
8. Service of Cocktails
9. Bar tending procedures

Reference Books:

1. Food and beverage service by Dennis Lili crap & John cousins. Publisher-ELBS

Selvamm Arts & Science College (Autonomous) Namakkal

Department of Hotel Management and Catering Science

B.Sc., HMCS

Practical –VIII: PROJECT & VIVA VOCE

Semester : VI **Credit : 2**

Course Code: 18U6HMPR01 **Hrs/week : 2**

Course Objectives:

The Students are given an opportunity to produce as in depth project report relevant to Hotel Industry which will enhance their knowledge and provide the future employer a guide to the student's imaginative and creative ability.

Each student has to be assigned a project work in the beginning of 6th semester. The report of the project work shall be submitted at the end of the 6th Semester 30 days prior to the commencement of the University examination.

The Report shall be prepared by the student under the supervision of faculty member of the department. Each report shall be neatly typed, in not less than 60 pages. Each student shall submit 2 copies of the report

Internal examiner and an External examiner shall conduct Project evaluation and viva-voce examination. The examiners, from the panel of Examiners suggested by the Board of studies from time to time, evaluate report. The results of the Project work shall be forwarded to the university.

The absentees i.e., those who have not successfully completed the Project Work and those who have not secured minimum marks of pass, shall redo the Project Work and submit the new project report, to the department, along with the regular students in the next year.

Project report should contain the following in addition to the main report of their work done.

i.	Cover Page	-	See Specimen – I
ii.	Declaration by the Student	-	See Specimen – II
iii.	Certificate	-	See Specimen – III

Selvamm Arts & Science College (Autonomous),Namakkal.

Department of Mathematics

B.Sc.,Mathematics

Nationally Re-Accredited at the highest Grade –A by NAAC

UGC recognized 2(f) and 12(B) Institution

Affiliated to Periyar University, (Salem)

Namakkal – 637 003

BACHELOR OF SCIENCE (MATHEMATICS)

CHOICE BASED CREDIT SYSTEM (CBCS)

SYLLABUS (2018– 19)

VISION

To become a premier center, promoting Mathematics locally and globally.

MISSION

To materialize the vision, the department of mathematics focuses on the following:

- To provide necessary background.
- For producing a meaning full career in Mathematics and related fields.
- For acquiring Mathematical skills and employability skills.

Programme Outcomes (UG)

PO 1: Communicate Effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.

PO 2: **Environment Concern** - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

Selvamm Arts & Science College (Autonomous),Namakkal.

Department of Mathematics

B.Sc.,Mathematics

B.Sc-MATHEMATICS-COURSE PATTERN

Choice Based Credit System

(For the students admitted from the year 2018 onwards)

Sem	Part	Subject	Paper	Paper Code	Title of the Paper	Hr	Cr	Max. Marks		
								CIA	ESE	TOTAL
I	I	Language	Paper-I	18U1FTA01	Foundation Tamil – I	5	4	25	75	100
	II	Language	Paper-I	18U1FEN01	Foundation English – I	5	4	25	75	100
	III	Core course	Paper-I	18U1MA01	Algebra and Trigonometry	6	4	25	75	100
	III	Core course	Paper-II	18U1MA02	Differential Calculus	6	4	25	75	100
	III	Allied - I	Paper-I	18U1PHA01	Allied Physics – I	4	3	25	75	100
	III	Allied Practical	Practical-I	18U1PHAP01	Allied Physics Practical	2	-	-	-	-
	IV-B	Value Education	Paper-I	18U1VE01	Yoga and Practice	2	2	25	75	100
Total for Semester I						**30**	**21**			**600**
II	I	Language	Paper-II	18U2FTA02	Foundation Tamil – II	5	4	25	75	100
	II	Language	Paper-II	18U2FEN02	Foundation English – II	5	4	25	75	100
	III	Core course	Paper-III	18U2MA03	Integral Calculus	6	4	25	75	100
	III	Elective course	Paper-I	18U2MAE01 18U2MAE02	Vector Analysis & Fourie Series (or) Probability Theory	6	4	25	75	100
	III	Allied – I	Paper-II	18U2PHA02	Allied Physics – II	4	3	25	75	100
	III	Allied Practical	Practical-I	18U2PHAP01	Allied Physics Practical	2	2	40	60	100
	IV-B	-	-	18U2ES01	Environmental Studies and Industrial Links	1	1	25	75	100
	IV-B	Value Education	Paper-II	18U2VE02	Values for Life	1	1	25	75	100
Total for Semester II						**30**	**23**			**800**
III	I	Language	Paper-III	18U3FTA03	Foundation Tamil – III	5	4	25	75	100
	II	Language	Paper-III	18U3FEN03	Foundation English – III	5	4	25	75	100
	III	Core course	Paper-IV	18U3MA04	Differential Equations	5	4	25	75	100
	III	Core course	Paper-V	18U3MA05	Statics	6	4	25	75	100

	III	Allied - II	Paper-III	18U3STA01	Mathematical Statistics	5	3	25	75	100
	III	Allied Practical	Practical-II	18U4STAP01	Allied Statistics Practical	2	-	-	-	-
	IV-A	Non-Major Elective course	Paper-I	18U3EN01	Inter-Personal Skills	2	2	25	75	100
					Total for Semester III	**30**	**21**			**600**
IV	I	Language	Paper-IV	18U4FTA04	Foundation Tamil – IV	5	4	25	75	100
	II	Language	Paper-IV	18U4FEN04	Foundation English – IV	5	4	25	75	100
	III	Core course	Paper-VI	18U4MA06	Analytical Geometry (3D)	6	4	25	75	100
	III	Core course	Paper-VII	18U4MA07	Dynamics	5	4	25	75	100
	III	Allied - II	Paper-IV	18U4STA02	Inferential Statistics	5	3	25	75	100
	III	Allied Practical	Practical-II	18U4STAP01	Allied Statistics Practical	2	2	40	60	100
	IV-A	Non-Major Elective course	Paper-II	18U4CSN04	HTML and Web Design	2	2	25	75	100
					Total for Semester IV	**30**	**23**			**700**
V	III	Core course	Paper-VIII	18U5MA08	Algebraic structure	6	5	25	75	100
	III	Core course	Paper-IX	18U5MA09	Sequence & Series	6	5	25	75	100
	III	Core course	Paper-X	18U5MA10	Discrete Mathematics	6	5	25	75	100
	III	Core course	Paper-XI	18U5MA11	Numerical Analysis	5	4	25	75	100
	III	Elective	Paper-II	18U5MAE04 18U5MAE05 18U5MAE06	Linear Programming (or) Automata Theory and Formal languages (or) Astronomy	5	4	25	75	100
	IV-A	Skill based - I	Paper-I	18U5MAS01	LaTeX	2	2	25	75	100
					Total for Semester V	**30**	**25**			**600**
VI	III	Core course	Paper- XII	18U6MA12	Modern Algebra	6	5	25	75	100
	III	Core course	Paper- XIII	18U6MA13	Real Analysis	6	5	25	75	100
	III	Core course	Paper- XIV	18U6MA14	Complex Analysis	6	5	25	75	100
	III	Core course	Paper-XV	18U6MA15	Graph Theory	5	4	25	75	100
	III	Elective	Paper-III	18U6MAE07 18U6MAE08 18U6MAE09	Operation Research (or Mathematical Modeling (Number Theory	5	4	25	75	100
	IV-A	Skill based - II	Paper-II	18U5MAS02	Mathematics for Compet Exam	2	2	25	75	100
	V	Extension Activity				-	2			
					Total for Semester VI	**30**	**27**			**600**
					Total Credit for all Semester	**180**	**140**			**3900**
					*** Extension Activities 80 hours outside the class hours (Semester II to V**					

Program Specific Outcomes (PSOs)

PSO-1	Students will develop and apply concepts of expressions, equations and inequalities to investigate and describe.
PSO-2	Real Numbers and Algebraic Expressions. Classify and Define Properties of Real Numbers. Solve Multi-Step Linear Equations. Problem Solving.
PSO-3	Simplify and perform arithmetic operations on rational algebraic expressions, including those with radicals and perform the basic arithmetic operations of addition, subtraction, multiplication and division on polynomials.
PSO-4	Demonstrate an understanding of limits and how they are used in sequences, series, differentiation and integration
PSO-5	The *course* includes axioms of *real* number systems, uniform convergence of sequences and series of functions, equi-continuity.
PSO-6	Formulate and solve problems as networks and graphs. Develop linear programming (LP) models for shortest path, maximum flow, minimal spanning tree, critical path, minimum cost flow, and transshipment problems. Use CPM and PERT techniques, to plan, Schedule and control project activities.
PSO-7	*Complex* numbers, analytic functions, Cauchy integral theorem, Cauchy integral formula, power series and conformal mapping.
PSO-8	Introduce the *Fourier series* and its application to the solution of partial differential equations and Understand and apply *Fourier series.*
PSO-9	Fluid, solid or continuum mechanics. You have good knowledge of a broad range of methods and techniques based on mechanics and can use them for analysis and problem solving.
PSO-10	Correlation and Regression analysis, Multiple Regression and *Statistical* Forecasting.

PSO-11	*Analyze vector* functions to find derivatives, tangent lines, integrals, arc length, and curvature, Differentiate *vector* fields, Determine gradient *vector* fields and find potential functions, Evaluate line integrals directly and by the fundamental theorem.
PSO-12	To appreciate the basic principles of Boolean algebra, Logic, Set Theory, Permutations.

Core course I – Algebra and Trigonometry

Semester:I **Credits: 4**

Course Code: 18U1MA01 **No. of Hours: 6**

Objectives:

- To Understand the concept of roots and polynomial Equations
- To learn the concept of the transformations of the equations
- To know the concept of expansions in trigonometry
- To develop the knowledge of hyperbolic function and Logarithmic complex quantities
- To Increase the solving ability by learning summation of series

Unit I

Polynomial equations – Relation between roots and coefficients of equations – Imaginary and Irrational roots – Symmetric functions of roots in terms of coefficients of third degree equation – Problems. [Ch 6: Page number:7.1-7.26]

Unit II

Reciprocal equations – Transformations of equation – To increase or decrease the roots of a given equation by a given quantity. Removal of terms – Descarte‘s rule of signs – Problems.[Ch 7: pg: 7.30 – 7.57]

Unit III

Expansions of sin nθ, Cos nθ and tan nθ – Expansions of $\sin^n\theta$,$\cos^n\theta$ – Expansions of sinθ , cosθ and tanθ in terms of θ - Problems. [Ch 11: pg: 11.1- 11.28]

Unit IV

Hyperbolic and inverse hyperbolic functions and its properties – Logarithm of a complex number – General Principal values – Gregory‘s series – Problems. [Ch 11: pg:11.32 – 11.73]

Unit V

Gregory's series-Generalisation of Gregory's series-Summation of series-Summation of series by Telescopic method-Problems [Ch 11: pg: 11.76-11.107]

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Simplify, factor, evaluate and perform operations on polynomial and Rational and irrational expressions.	3
CO-2	Evaluate trigonometric and inverse trigonometric functions.	2
CO-3	Solve trigonometric equations and applications.	3
CO-4	Apply and prove trigonometric identities	1
CO-5	Solve equations such as absolute value,Hyperbolic functions, quadratic, and logarithmic.	2

Text Books :

Dr.P.R.Vittal, Algebra, Analytical Geometry and Trigonometry,Margham Publications, 24,Rameswaram Road , T.Nager Chennai , 2002.

Reference Book:

1. Dr.P.R.Vittal,Allied Mathematics, Margham Publications, 24, Rameswaram Road , T.Nager, Chennai , 2002.

2. A.Singaravelu, Allied Mathematics, Meenakshi Traders, Chennai, 2002.

Core course II – Differential Calculus

Semester:I **Credits: 4**

Course Code18U1MA02 **No. of Hours: 6**

Objectives:

- To learn the notion of successive differentiation, The Leibnitz's formula and also Maxima and Minima at one and two variables. Use the second derivative test for a function of two variables to find any local extrema of the bivariate function.
- To learn how to obtain the equation of the tangent line and the normal line to any point of interest on a curve.
- To Understand the concept of Envelope and curvature of a space curve and signed curvature of a plane curve.
- To use ray diagrams to describe an image formed by thin lenses and curved mirrors.

Unit–I

Successive Differentiation – nth Derivatives – Leibnitz Theorem. Maxima and minima of functions(one & two variables)

[Chapter 1 :1.1 to 1.25, Chapter 2: 2.1 to 2.17, Chapter 3: 3.46 to 3.61]

Unit –II

Curvature and Radius of Curvature – Cartesian formula for Radius of Curvature – Radius of Curvature in Polar Co-ordinates – Radius of Curvature for Pedal Curve. [Chapter 6: 6.1 to 6.33]

Unit –III

Asymptotes – Working rule for finding asymptotes – Another method of finding asymptotes (factor method) – Intersection of a curve and its asymptotes. [Chapter 7: 7.1 to 7.31]

Unit–IV

Envelope – Envelope of the one Parameter family of Curves – Envelope for two Parameter family of Curves. [Chapter 8: 8.1 to 8.19]

Unit – V

Evolute – Coordinates of the Centre of Curvature – Chord of Curvature – Properties of Evolute[Chapter 9: 9.1 to 9.24]

Course Outcomes:

CONo.	**Upon completion of this course, students will be able to**	**PSOs addressed**
CO-1	Determine whether a first order differential equations	8
CO-2	Solve homogeneous second-order equations	1
CO-3	Identify a general method for constructing solutions to in homogeneous linear constant-coefficient second-order quations	4
CO-4	Identify a general method for constructing solutions to in higher homogeneous linear constant-coefficient second-order equations	4
CO-5	Determine whether – Lagrange's equation	2

Text Books :

Dr.P.R.Vittal, Calculus, Margham Publications, 24,Rameswaram Road, T.Nager, Chennai , 2007.

Reference Book:

1. Dr.P.R.Vittal,Allied Mathematics, Margham Publications, 24, Rameswaram Road , T.Nager, Chennai , 2002.

2. A.Singaravelu, Allied Mathematics, Meenakshi Traders, Chennai, 2002.

Department of Mathematics

B.Sc.,Mathematics

Core course III – Integral Calculus

Semester:II **Credits: 4**

Course Code: 18U1MA03 **No. of Hours: 6**

Course Objective:

- Various techniques of integration
- To perform integration and other operations for certain types of functions and carry out the computation fluently.
- Be able to recognize which part of the integrand would be best suited for u and for dv.
- Be able to describe the Riemann sum process that leads to the definite integral that computes arc length.
- Few applications of these functions in the field of physics, statistics.

Unit I

Integration – arbitrary constant – reduction formula - Integration by Parts – Bernoulli's formula – Reduction formula for $\int_0^{\frac{\pi}{2}} \sin^n x d\lambda$, $\int_0^{\frac{\pi}{2}} \cos^n x d\lambda$, $\int_0^{\frac{\pi}{4}} \tan^n x d\lambda$, $\int \sec^n x d\lambda$, $\int \operatorname{cosec}^n x d\lambda$, $\int \cos^m x \sin^n x d\lambda$, $\int \cot^n x d\lambda$, $\int_0^{\infty} x^n e^{ax} dx$, $\int e^{-x} x^n dx$ [Ch 10: pg: 10.38-10.48&Ch 11: pg: 11.1-11.32]

Unit II

Definite integral-properties of definite integral-problems [Ch 12 :Pg 12.1-12.26]

Unit III

Betta, Gamma functions-Gamma functions-properties of Gamma functions-problems[Ch 13: pg: 13.1-12.27].

Unit IV

Length of an arc-polar coordinates-surface area-problems

[Ch 18: pg: 18.1-18.24 &Ch 16: pg: 16.1-16.18]

Unit V

Multiple integral: Definite integral – Double integral in Cartesian and polar co-ordinates – change of order of integration – Applications of double and triple integrals. [Ch 17: 17.1 – 17.42]

Course Outcomes:

CO No.	**Upon completion of this course, students will be able to**	**PSOs addressed**
CO-1	To analyze relations, functions, andtheir graphs	1
CO-2	Apply comparison properties of definite integrals	11
CO-3	Decide when it is appropriate to use the method known as integration by parts	4
CO-4	Find the slope of the tangent line to a point on a curve given by a polar equation.	1
CO-5	Use Laplace transforms to solve ordinary differential equations, partial differential equations & evaluate integrals.	4

Text Books :

Dr.P.R.Vittal, Calculus, Margham Publications, 24, Rameswaram Road, T.Nager,Chennai, 2007.

Reference Book:

1. Dr.P.R.Vittal,Allied Mathematics, Margham Publications, 24, Rameswaram Road , T.Nager,Chennai, 2002.

2. A.Singaravelu, Allied Mathematics, Meenakshi Traders, Chennai, 2002.

Major Elective course I – Vector Analysis and Fourier

Series Semester:II **Credits: 4**

Course Code: 18U2MAE01 **No. of Hours:**

6 Objectives:

You will be able to:-

- Interpret derivatives of vector valued functions as velocity and acceleration functions.
- Determine the arc length, unit tangent vector, principal unit normal vector, and curvature of a vector-valued function.
- Contrasting Scalar and Vector Fields.
- Explain the Fourier series for even and odd functions.
- Know the half range expansion.

Unit I

Vector differentiation: Limit of a vector function – Continuity and derivative of vector function – Geometrical and Physical significance of vector differentiation – Partial derivative of vector function – gradient and directional derivative of scalar point functions – Equations of tangent plane and normal line to a level surface. (Ch 1: Pg: 1 – 22)

Unit II

Vector point function: Divergence and curl of a vector point function – Solenoidal and irrational functions – Physical interpretation of divergence and curl of a vector point function. Vector identities – Laplacian operator. (Ch 1: Pg: 22 – 53)

Unit III

Integration of vector functions – Line, Surface and Volume integrals. (Ch 2: Pg: 54 – 88)

Unit IV

Gauss-Divergence Theorem – Green‘s Theorem – Stoke‘s Theorem (statement only).Verification of theorems and simple problems using the theorems. (Ch 2: Pg: 89 – 141).

Unit V

Fourier series – Definition – Fourier co-efficients – Fourier series of periodic functions of period 2□ – Even and odd functions – Half range Fourier series – Problems. (Ch 6: Pg: 6.1 – 6.60)

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Identify the concepts of gradient, divergence, curl.	11
CO-2	Formulate and interpret Cartesian, cylindrical and spherical coordinate systems.	11
CO-3	Calculate line, surface and volume integrals.	1
CO-4	Apply divergence, Stokes' and Green`s theorems.	8
CO-5	You will learn how to express a periodic signal f(t) in a series of sine and cosines.	8

Text Book:

1. Dr.P.R.Vittal and V.Malini , Vector Analysis, Margham Publications, 24, Rameswaram Road , T.Nager, Chennai , 2002. (Unit I to IV)

2. Dr.P.R.Vittal , Differential Equations, Fourier and Laplace Transforms,Probability.Margham Publications, 24, Rameswaram Road, T.Nager, Chennai , 2002. (Unit V)

Reference Book:

1.T.K. Manikavasagampillai, vector analysis and fourierseries,S.Viswanathan , PVT,LTD.

2. A.Singaravelu, Allied Mathematics, Meenakshi Traders, Chennai, 2002.

Major Elective course I– Probability Theory

Semester:II **Credits: 4**

Course Code18U2MAE02 **No. of Hours: 6**

Objectives:

The overall purpose of the course is that the student should be well acquainted with basic concepts in probability theory, models and solution methods applied to real problems.

Unit – I

Introduction – probability Axioms – conditional probability – Baye's theorem – independent events – problems.

Unit II

Random variable – probability distribution of a random variable – Discrete and continuous variables – problems .

Unit – III

Expected value – Functions of a random variable – Moment generating functions – problems .

Unit – IV

Two point distribution – Binomial distribution – Poisson distribution – Gamma distribution – Normal distribution – Chebychev's inequality – problems.

Unit – V

Regression model – one way analysis of variance – Two way analysis of variance – problems

Text Book:

V.K.Rokatgi ,An Introduction to Probability Theory and Mathematical Statistics (Wiley Eastern Publications, NewDelhi), 1985.

Reference book:

1. P. R. Vittal, Mathematical Statistics, Matgham Publication, Chennai.

2. D. C. Sancheti& V. K. Kapoor, Statistics (7th edition), sultan chand& sons, New Delhi, 2005.

Core course IV – Differential Equations

Semester:III **Credits: 4**

Course Code: 18U3MA04

No. of Hours: 6

Objectives:

- This course aims to provide logical skills in the formation of differential equations, to expose to different techniques of finding solutions to these equations and in addition stress is laid on the application of these equations in geometrical and physical problems.
- To study DE's and PDE's of first and second order.

Unit I

Ordinary Differential Equations – First order but not of the first degree – Equations solvable for p, x and y – Clairaut's form – Second order differential equations with constant co-efficients – Particular integrals of the form e^{ax} V, where V is of the form x , x^2 , sinax , cosax , x sinax and xcosax.

Unit II

Second Order Differential equations with variable co-efficients – Both homogeneous linear equations and non – Linear homogeneous equations – Method of variation of parameters – Simple problems.

Unit III

Partial Differentiation: Partial derivatives – Higher derivatives – Homogenuous functions – Theorems – Problems.

Unit IV

Partial Differential Equations – Formation of Partial Differential equations by eliminating arbitrary constants and arbitrary functions.

Unit V

Complete, particular, singular and general integrals – Solution of equations of standard types □ (p,q) = 0 , □ (x,p,q) = 0, □ (y, p, q) = 0 , □ (z, p, q) = 0 and □1(x, p) = □2(y, q) – Clairaut's form – Lagrange's equation Pp + Qq = R.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Determine whether a first order differential equations	4
CO-2	Solve homogeneous second- order equations	4
CO-3	Identify a general method for constructing solutions to in homogeneous linear constant- coefficient second-order equations	1
CO-4	Identify a general method for constructing solutions to in higher homogeneous linear constant-coefficient second- order equations	11
CO-5	Determine whether – Lagrange's equation	11

Text Book:

Dr.P.R.Vittal , Differential Equations, Fourier and Laplace Transforms,Probability.Margham Publications, 24, Rameswaram Road , T.Nager, Chennai , 2002.

Reference Book:

1. M.D.Raisinghania, Ordinary & Partial differential Equations, S.Chand&Co.Ltd, 1993.
2. S.Narayanan, T.K. ManicavachagomPillay, Differential Equations and its Applications, S.Viswanathan Pvt. Ltd. (2006).

Core Course V – Statics

Semester:III **Credits: 4**

Course Code: 18U3MA05 **No.of Hours: 6**

Objectives:

- Components of a force and the resultant force for a systems of forces
- Moment caused by force acting on a rigid body.
- To understand the nature of frictional forces and the laws of friction.
- Centroid and center of gravity for an area and a rigid body.
- To learn how a suspension bridge works.

Unit I

Forces and Equilibrium – Forces – Resultant of two forces – Three forces related to a triangle – Equilibrium of a particle under three or more forces. [Ch 2 & 3, 3.1]

Unit II

Forces on a rigid body – Moment – Equivalent systems of forces – Parallel forces – Varignon's theorem – Forces along a triangle – Couples – Equilibrium of a rigid body under three co-planar forces – Reduction of co-planar forces into a force and a couple. [Ch 4: 4.1, 4.3 – 4.6,4.9&Ch 5: 5.1]

Unit III

Friction – Laws of friction – Co-efficient of friction, angle and cone of friction – Limiting equilibrium of a particle on a rough inclined plane – Tilting of a body - Simple problems. Ch 2: 2.1, Ch 3: 3.2 &Ch 5: 5.2]

Unit IV

Definition – Centre of gravity of uniform bodies like thin rod – Thin parallelogram – Circular ring and Circular lamina – Triangular lamina – Trapezium lamina – Systems of three uniform rods forming a triangle – Method of integration for the arc of a circle – Sector of a circle – Quadrant of an ellipse – Solid and hollow sphere – Solid and hollow cone – Problems. [Ch 6: 6.1 – 6.2]

Unit V

Strings – Equilibrium of strings under gravity – Common catenary – Suspension bridge.[Chapter 9 (fully)].

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Understand force vectors and represent them in one, two and three dimensions	11
CO-2	Determine the resultants of forces and moments in two and three dimensions	4
CO-3	Describe the concept of dry friction and analyze the equilibrium of rigid bodies subjected to this force.	4
CO-4	Understand the concepts of the center of gravity, center of mass, centroid, and be able to locate these centers on a variety of bodies such as lines, areas,volumes, and masses.	3
CO-5	To think about the challenges associated with construction of a suspension bridge and to propose possible solutions to some of these challenges.	1

Text Book:

P.Duraipandian, Mechanics, S. Chand & Co, Chennai, June 1997.

Reference Book:

Dr.M.K. Venkataraman, Statics,Agasthiar Publication, 9A, Clives Building, 33, NandhiKoilStreet, Theppakulam(post), Trichy,1994.

Allied Statistics - Mathematical Statistics

Semester:III **Credits: 3**

Course Code: 18U3STA01 **No. of Hours: 5**

Objectives:

- To make the students gain wide knowledge in probability this plays a main role in solving real life problems.
- know the definition and properties of standard discrete distributions and their applications in analyzing data.
- know methods of finding correlation and regression co-efficients between two data sets and their applications

Unit I

Random variable – Discrete and continuous – Distribution functions – Marginal and conditional distributions – Mathematical expectation – Moment generating function – Characteristic function – Chebycheb's inequality.

Unit II

Theoretical standard distributions – Binomial, Poisson rectangular and Normal distributions – Derivations properties and applications – Simple problems.

Unit III

Exact sampling distribution – Chi-square distribution student _t' distribution and the _F' distribution – Derivation of mean, variance, M.G.F and characteristic function – Relationship between _t', chi-square and _F' distributions.

Unit IV

Correlation and regression – Correlation co-efficient and rank correlation – Regression lines and regression co-efficient – Properties – Partial and multiple correlation co-efficient (3 variables only).

Unit V

Curve fitting – Method of least squares – Fitting of second degree parabola – Fitting of Power curve and exponential curve – Simple problems.

Course Outcomes:

CO No.	Upon completion of this course,students will be able to	PSOs addressed
CO-1	Know the definition and properties of standard discrete distributions and their applications in nalyzing data.	6
CO-2	Know methods of finding correlation and regression co- efficients between two data sets and their applications	10

Text Book:

S. C. Gupta & V. K. Kapoor, Fundamentals of Mathematical statistics (11th edition), sultan chand& sons, New Delhi, 2004.

Reference Books:

1. P. R. Vittal, Mathematical Statistics, Matgham Publication, Chennai.

2. D. C. Sancheti& V. K. Kapoor, Statistics (7th edition), sultan chand& sons, New Delhi, 2005.

Allied Statistics Practical

Semester:III/IV **Credits:2**

Course Code: 18U4STAP01 **No. of Hours: 2**

Unit I

Computation of measures of location and Dispersion – Measures of skewnessand Kurtosis.

Unit II

Fitting of Binomial, Poisson and Normal distributions – Tests of goodness of fit.

Unit III

Curve fitting – Fitting of a straight line($y = a+bx$), second degree parabola ($y = a+bx+cx^2$), $y = ae^{bx}$, $y = ab^x$ and $y = ab^x$.

Unit IV

Computation of correlation co-efficient – Rank correlation co-efficient – Regression lines.

Unit V

Asymptotic and exact tests with regard to mean, variance and co-efficient of correlation – Test for Independence of attributes.

Note:

AlliedStatistics Practical Examination will be conducted at end of fourth semester.

Core CourseVI– Analytical Geometry (3D)

Semester:IV **Credits: 4**

Course Code: 18U4MA06 **No. of Hours: 6**

Objective:

The student will demonstrate knowledge of:

- Geometry and its applications in the real world
- How to communicate geometric ideas in the language of the mathematician
- The fundamental theorems of Euclidean geometry

UNIT I

Direction cosines - Direction ratios - General equation of the plane - Intercept form - Normal Form - Angle between two planes. (Ch I Sec 7, 8 and Ch II Sec 1, 2, 3, 7)

UNIT II

Length of the perpendicular - Equation of the planes bisecting the angle between two planes - Straight line as the intersection of two planes - Symmetrical form. (Ch II Sect 10, 11 and Ch III Sec 1, 2, 3)

UNIT III

Equation of a straight line passing through two given points - Condition for a line to be parallel to a plane - Coplanar lines - Shortest distance between two given lines - Simple problems. (ChIII Sec 4, 5, 7 & 8)

UNIT IV

Equation of a sphere - Finding centre and radius - Length of the tangentto a sphere - Plane section of a sphere. (ChIV Sec 2 – 5)

UNIT V

Equation of a circle on a sphere - Intersection of two spheres - Tangent plane to a sphere - Simple problems**.** (ChIV Sec 6 – 8)

Course Outcomes:

CO No.	**Upon completion of this course, students will be able to**	**PSOs addressed**
CO-1	Apply appropriate techniques, tools,and formulas to determine measurements	1
CO-2	Select and use units of appropriate size and type to measure angles, perimeter, surface area, and volume	3
CO-3	Analyze characteristics and properties of two- and three- dimensional geometric shapes and develop mathematical arguments about geometric relationships	5
CO-4	Apply transformations and use symmetry to analyze mathematical situations	2
CO-5	Use visualization, spatial reasoning, and geometric modeling to solve problems	2

Text Book:

T.K. ManicavachagomPillay, T. Natarajan, Analytical Geometry, Part II - Three Dimensions, S. Viswanathan Publishers Pvt. Ltd. (2009).

Reference Books:

1. Shanti Narayanan, Analytical Solid Geometry, S. Chand & Company Ltd, New Delhi (2007).

2. M.L. Khanna, Solid Geometry, Jai PrakashNath& Co, Educational Publishers, 25th edition (2005).

Core Course VII – Dynamics

Semester:IV **Credits: 4**

Course Code: 18U4MA07 **No. of Hours: 5**

Objectives:

- To provide a basic knowledge of00 the behaviour of objects in motion.
- This course aims to provide models for some real life problems. This covers topics like Simple Harmonic Motion, Projectiles, Central Orbits and Moment of inertia. Stress is on the mathematical formulation of the physics aspects of the problems and it develops logical deduction and interpretation.

Unit I

Introduction – Definition – Velocity – Resultant velocity – Components of velocity and acceleration in Cartesian coordinates – Tangents and Normal components of velocity and acceleration – Radial and Transverse components of velocity and acceleration – Motion of a particle along a straight line under uniform acceleration – Problems – Simple Harmonic Motion – Definition – Equations of S.H.M – Properties of S.H.M. – Composition of two Simple Harmonic Motion's – Problems. [Chapter 1: 1.1, 1.2.1 – 1.2.2, 1.3, 1.4.1,
12.1- 12.3]

Unit II

Two Dimensional motion of a particle – Introduction – Projectile – Trajectory – Horizontal range – Velocity of projection – Angle of projection – The path of a projectile is a parabola – Range and time of flight on a horizontal plane – Range and time of flight on an inclined plane – Problems. [Chapter 13: 13.1- 13.2 (13.3.1 – 13.3.2 only)]

Unit III

Introduction – Impulse and Impulsive force – Definitions – Principle of conservation of linear momentum – Newton's experimental law – Direct and Oblique impact of two smooth spheres – Change in kinetic energy and impulse imparted due to collision – Impact of sphere on a fixed plane – Problems. [Chapter 14: 14.1 – 14.5]

Unit IV

Definition – Central force – Central orbit – Areal velocity – Differential equation of the central orbit in polar co-ordinates – p-r equation of the central orbit – Given the central orbit to find the law of force – Given the law of central force to find the orbit – Problems.[Chapter 16 : 16.1 – 16.2]

Unit V

Moment of Inertia of simple bodies – Parallel and Perpendicular axes theorems – Motion of a rigid body about a fixed horizontal axis – Kinetic Energy of rotation – Moment of momentum. [Chapter 17: 17.1, 17.1.1 – 17.1.2]

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Understand force vectors and represent them in one, two and three dimensions	9
CO-2	Determine the resultants of forces and moments in two and three dimensions	9
CO-3	Describe the concept of dry friction and analyze the equilibrium of rigid bodies subjected to this force.	1

Text Book:

P.Duraipandian,Mechanics, , S. Chand & Co, Chennai, June 1997.

Reference Book:

Dr. M. K. Venkataraman, Dynamics,Agasthiar Publication, 9A, Clives Building, 33, nandhiKovil street, Theppakulum(post),Trichy .

Allied Statistics - Inferential Statistics

Semester:IV **Credits: 3**

Course Code: 18U4STA02 **No. of Hours: 5**

Objectives:

- To introduce the concept of statistical inferences.
- To apply Statistics Methods for Mathematical Problems.

Unit I

Population and sample, parameter and statistic – point estimation – Consistency – unbaisedness – Efficiency (Cramer-Rao inequality) and sufficiency (Rao-Blackwell Theorem).

Unit II

Methods of estimation – maximum likelihood – moments and minimum chi-squares methods – properties of these estimators – interval estimation(concept only).

Unit III

Test of hypothesis – concept of statistics hypothesis – Simple and composite hypothesis – critical region – Type-I and type-II errors – Power of a test – Neymanpearson lemma – Simple problems.

Unit IV

Test of significance – standard error – Large sample test with regard to mean, difference of means, proportions and difference of proportion – Simple problems.

Unit V

Test of significance **–** Exact sample test based on _t‘ and _F‘ distribution with regard to mean. Variance and correlation co-efficient – Test based on chi- square distribution.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To know the concept of statistical inferences.	10
CO-2	To apply Statistics Methods for Mathematical Problems.	6

Text Book:

S. C. Gupta & V. K. Kapoor, Fundamentals of Mathematical statistics (11th edition), sultan chand& sons, New Delhi, 2004.

Reference Books:

1. P. R. Vittal, Mathematical Statistics, Matgham Publication, Chennai.

2. D. C. Sancheti& V. K. Kapoor, Statistics, sultan chand& sons, New Delhi, 2005.

Core course VIII – Algebraic Structure

Semester:V **Credits: 5**

Course Code: 18U5MA08 **No. of Hours: 6**

Objectives:

- Present the relationships between abstract algebraic structures with familiar numbers systems such as the integers and real numbers.
- Present concepts of and the relationships between operations satisfying various properties (e.g. commutative property).
- Present concepts and properties of various algebraic structures.
- Discuss the importance of algebraic properties relative to working within various number systems.
- Develop the ability to form and evaluate conjectures.
- Studying the rings and their properties.

Unit I

Groups: Definition – Example – Elementary properties of a group – Equivalent definitions of a group – Permutation groups. [Chapter 3:3.1 to 3.4]

Unit II

Groups: Subgroups – Cyclic groups – Order of an element – Cosets and Lagrange's theorem.[Chapter 3:3.5 to 3.8]

Unit III

Groups: Normal subgroups – Quotient groups – Isomorphism – Homomorphisms. [Chapter 3: 3.9 to 3.11]

Unit IV

Rings: Definition – Examples – Elementary properties of rings – Isomorphism – Types of rings.[Chapter 4: 4.1 to 4.4]

Unit V

Rings:Characteristic of rings – Subrings – Ideals – Quotient rings. [Chapter 4: 4.5 to 4.8]

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Understand the importance of algebraic properties with regard to working within various number systems	1
CO-2	Extend group structure to finite permutation groups (Cayley's Theorem).	7
CO-3	Generate groups given specific conditions	12
CO-4	Investigate symmetry using group theory.	7
CO-5	Understand the three major concrete models of Boolean algebra: the algebra of sets, the algebra of electrical circuits, and the algebra of logic.	12

Text Book:

Dr. S. Arumugam and A. Thangapandi Isaac, Modern Algebra, Scitech publications (India) Pvt Ltd,Chennai , 2nd Reprint June 2005

Reference Books:

1. A.R.Vasistha, A first course in modern algebra, Krishna Prekasen Mandhir, 9, Shivaji Road, Meerut(UP), 1983.

2. M.L.Santiago, Modern Algebra, Tata McGraw Hill, New Delhi, 1994.

Core course IX – Sequence and Series

Semester:V **Credits: 5**

Course Code: 18U5MA09 **No. of Hours: 6**

Objectives:

- Learn to work with logarithmic, exponential, and inverse trigonometric functions.
- Learn to work with infinite sequences and series.
- Learn to work with infinite sequence is bounded.
- Learn to work with an infinite sequence is monotonic.
- Learn to work with an infinite sequence is convergent or divergent.
- Find the sequence of partial sums of an infinite series.
- Determine if a geometric series is convergent or divergent.
- Find the sum of a convergent geometric series.

Unit I

Sequences – bounded sequences – monotonic sequences – convergent sequences – divergent and oscillating sequences – algebra of limits. [Ch 3: 3.1
– 3.6]

Unit II

Behavior of monotonic sequences – Some theorems on limits – Subsequences. [Ch 3: Sec 3.7 – 3.9]

Unit III

Limit points – Cauchy sequences – the upper and lower limit of a sequence – Infinite series – comparison Test. [Ch 3: 3.10 - 3.12, Ch4 : 4.1, 4.2]

Unit IV

Kummer‘s test – D‘Alembert‘s ratio test – Raabe‘s test – De Morgan and Bertrand‘s test – Gauss‘ test. [Ch 4: 4.3]

Unit V

Cauchy's root test – Cauchy's condensation test – Cauchy's integral test – Alternating series – Leibnitz's test – Absolute convergence. [Ch 4: Sec 4.4, 4.5, Ch 5: Sec5.1, 5.2]

Course outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Determine if an infinite sequence is bounded.	4
CO-2	Determine if an infinite sequence is monotonic.	4
CO-3	Determine if an infinite sequence is convergent or divergent.	5
CO-4	Find the sequence of partial sums of an infinite series.	8
CO-5	Determine if a geometric series is convergent or divergent.	5

Text Books:

S. Arumugam and A. Thangapandi Isaac, Sequences and series, New Gamma Publishing House (1991).

Reference Book:

1. Richard R. Goldberg, Methods of Real Analysis, Oxford and IBH Publishing Co &Pvt Ltd, 1970.

2. M.K.Singal&Asha Rani Singal, A first course in Real Analysis, R. Chand & Co.,1999

Core Course X – Discrete Mathematics

Semester:V **Credits: 5**

Course Code: 18U5MA10 **No. of Hours: 6**

Objectives:

- To introduce formal languages and finite state machines which has applications in compiling techniques and complexity theory.
- To introduce the concepts of Relations, Functions and logic.
- To introduce the concepts of Boolean algebra, lattices and types of lattices.
- Prepare students to develop mathematical foundations to understand and create mathematical arguments, require in learning many mathematics and computer sciences courses. To motivate students how to solve practical problems using discrete mathematics

Unit I

Mathematical Logic – Statements and Notations – Connectives – Negation – Conjunction – Disjunction – Statement Formulas and Truth Table – Conditional and Bi-conditional – Well –formed Formulas – Tautologies. [Ch 1: 1.1, 1.2.1–1.2.4, 1.2.6–1.2.8]

Unit II

Normal Forms – Disjunctive Normal Forms – Conjunctive Normal Forms – Principal Disjunctive Normal Forms – Principal Conjunctive Normal Forms – Ordering and Uniqueness of Normal Forms – The Theory of Inference for the Statement Calculus – Validity using Truth tables –Rules of Inference – Consistency of premises and indirect method of proof.

[Ch 1: 1.3.1-1.3.5, 1.4.1– 1.4.3]

Unit III

Relations & ordering – Relations – Properties of binary relation in a set – Functions – Definition & Introduction – Composition of Functions – Inverse function – Binary and n-array operations – Hashing Functions – Natural numbers – Peano Axioms & Mathematical Induction – Cardinality . [Ch 2: 2.3.1, 2.3.2, 2.4.1 – 2.4.4, 2.4.6 2.5.1, 2.5.2]

Unit IV

Algebraic systems – Definition & Examples – Semi groups and monoids – Definition and examples – Homomorphism of semi groups &monoids – Sub semi groups & sub monoids – Grammars – Formal Definition of a Language – Notions of Syntax Analysis.

[Ch 3: 3.1.1, 3.1.2 , 3.2.1 , 3.2.2 , 3.2.3 , 3.3 , 3.3.2 , 3.3.3]

Unit V

Introduction – Finite state acceptors and regular grammars – Turing machines and partial recursive functions. [Ch 6: 6.1 – 6.2]

Course outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Construct mathematical arguments using logical connectives and quantifiers.	1
CO-2	Validate the correctness of an argument using statement and predicate calculus.	2
CO-3	Understand how lattices and Boolean algebra are used as tools and mathematical models in the study of networks.	12
CO-4	Learn how to work with some of the discrete structures which include sets, relations, functions, graphs and recurrence relation.	4

Text Book:

J.P.Trembly and R.Manohar, Discrete mathematical structures with applications to computer science,TataMcGraw Hill, NewDelhi, 2001.

Reference Book:

1. Prof.V.Sundaresan, K.S.GanapathySubramaniyan and K.Ganesan, Discrete Mathematics, Tata McGraw Hill, NewDelhi, 2000.

2. Dr.M.K.Venkataraman, Dr.N.Sridharan, Dr.N.Chandrasekaran, Discrete Mathematics, The National Publishing Company, Chennai, 2011.

Core Course XI – Numerical Analysis

Semester:V **Credits: 4**

Course Code: 18U5MA11 **No. of Hours: 5**

Objectives:

- To develop skills in solving problems using numerical techniques.
- This course covers the techniques of Numerical Differentiation and Numerical Integration. It also deals with solution of difference equations, Algebraic and Transcendental equations and Numerical solution of Ordinary differential equations of first order.

Unit I

Method of successive approximation – The method of false position – Newton Raphson Method – Generalized Newton's Method – Muller's Method.

Unit II

Finite Differences – Forward Differences – Backward Differences – Symbolic relations and separation of symbols – Detection of Errors by use of difference tables – Differences of a polynomial – Newton's formulae for Interpolation – Central Difference Interpolation formulae – Gauss's central difference formulae – Striling's formulae – Bessel's formulae – Everett's formulae.

Unit III

Numerical Differentiation – Errors in Numerical Differentiation – Numerical Integration – Trapezoidal rule – Simpson's 1/3 rule – Simpson's 3/8 rule – Boole's and Weddle's rule.

Unit IV

Solution of Linear systems – Direct Methods – Matrix Inversion method – Gaussian elimination method – Modification of the Gauss method to compute the inverse – Method of Factorization – Solution of Linear systems – Iterative methods – Jacobian's method – Gauss – Seidal Method.

Unit V

Solution of Taylor's series – Picard's method of successive approximations – Euler's method – Runge-Kutta methods – Second order and third order.

Course outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To develop skills in solving problems using numerical techniques.	2
CO-2	It also deals with solution of difference equations, Algebraic and Transcendental equations and Numerical solution of Ordinary differential equations of first order.	2

Text Book:

S.S.Sastry, Introductory Methods of numerical analysis, Prentice Hall of India Pvt Ltd, New Delhi,2000.

Reference Books:

1. E.Balagurusamy, Numerical Methods, Tata McGraw Hill Publishing Company Ltd, NewDelhi, 2002.

2. T.K.Manickavasagam and Narayanan, Engineering Numerical Methods, S.Viswanathan& Co, Chennai, 1998.

Major Elective Course II – Linear Programming

Semester:V **Credits: 4**

Course Code: 18U5MAE04 **No. of Hours: 5**

Objectives:

- To know the origin and development of Operations Research.
- To introduce the field of operations research which has many applications in management techniques.
- To develop the skills of formulation of LPP and different techniques to solve it.
- To know the application of Transportation and Assignment problems.

Unit I

Introduction – Definition of O.R. – Scope , phases and Limitations of O.R. – Linear Programming Problem – Definitions – Mathematical Formulation – Characteristic of a LPP – Matrix form of LPP – Graphical Method – Definitions of bounded , unbounded and optimal solutions – procedure of solving LPP by graphical method – Problems – Simplex technique – Definitions of Basic, nonbasic variables – Basic solutions – Slack variables and optimal solution, simplex procedure of solving LPP – Problems.

Unit II

Introduction – Big – M method – Definitions of Big – M method, surplus variables and artificial variables – Procedure of solving an LPP by Big – M method – Pseudo optimal solution – Problems – Two-Phase Simplex method – Procedure of solving an LPP by two-phase simplex method – Problems.

Unit III

Introduction – Balanced and unbalanced T.P, Feasible solution – Basic feasible solution – Optimum solution – Degeneracy in a T.P. – Mathematical formulation – North – West Corner rule – Vogel's approximation method (unit penalty method) – Method of Matrix minima (Least cost Method) – Problems – Algorithm of Optimality test (Modi Method) – Problems.

Unit IV

Assignment problem – Definition – Mathematical formulation of the Assignment problem – Test for optimality by using Hungarian method – Unbalanced Assignment problem – Degeneracy in Assignment problem

Maximization case in Assignment problem – Restrictions on Assignment problem – Variations in Assignment problem – Problem

Unit V

Introduction – Definition – Basic assumptions – n jobs to be operated on two machines – problems – n jobs to be operated on three machines – problems
– n jobs to be operated on m machines – Problems.

Course outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To know the field of operations research this has many applications in management techniques.	3
CO-2	To know the skills of formulation of LPP and different techniques to solve it.	6
CO-3	To know the application of Transportation and Assignment problems.	6

Text Book:

P.K.Gupta, Man Mohan and KantiSwarup, Operations Research, Ninth Edition, Sultan Chand and Sons, New Delhi, 2001.

Reference Books:

1. S.Kalavathy, Operations Research, Second Edition, Vikas Publishing House, New Delhi, 2002.

2. P.K.Gupta and D.S.Hira, Operations Research, Second Edition, S. Chand & Co, NewDelhi, 2004.

Major Elective Course II – Automata Theory and Formal Languages Semester:V **Credits: 4**

Course Code: 18U5MAE05 **No. of Hours: 5**

Objectives:

- To introduce automata formal languages which has applications in compiling techniques and complexity theory.
- To make them understand the relation between grammar and Automata.

Unit I

Introduction – phrase structure languages.

Unit II

Closure operations.

Unit III

Context free languages.

Unit IV

Finite state automata.

Unit V

Push down automata.

Text Book:

Rani Sriomoney, Content and treatment as in, _Formal Languages and Automata', Revised Edition, Pulishied by the Christian Literary Society, Madras
– 3, 1984.

Reference Books:

1. Hopcrot and still man, Formal languages and their relation automata, Addision Wesley.

2. R.Y.Kulin, Automata theory, Machines and Languages, McGraw Hill.

Major Elective Course II – Astronomy

Semester:V **Credits: 4**

Course Code: 18U5MAE06 **No. of Hours: 5**

Objectives:

- This course aims to provide working knowledge about the universe.
- To introduce the exciting world of astronomy to the students.

Unit I

Celestial Sphere – Diurnal motion – Simple Problems. [39 – 83]

Unit II

Zones of Earth – Terrestrial Latitudes and Longitudes – Rotation of Earth – Dip of the horizon – Twilight – Simple problems.[104 – 116]

Unit III

Astronomical refraction – Simple problems.[117 – 134]

Unit IV

Kepler's Laws – simple problems. [146 – 163]

Unit V

Moon – phases of moon – Eclipses – Introduction – umbra and penumbra – lunar eclipse – solar eclipse – Condition for the occurrence of lunar and solar eclipses. [229 – 275]

Text Book:

1. S.Kumaravelu and SusheelaKumaravelu, Astronomy, SKV Publishers, Nagarkoil, 2004.

Reference Books:

1. H.Karttunenet. al, Fundamental Astronomy (4th Edition), Springer Verlag, Berlin, 2003.

2. L.Motz and A.Duveen, Essentials of Astronomy (2nd Edition), Columbia, 1977.

B.Sc.,Mathematics

Skill Based Elective course I–LaTex

Semester:V **Credits: 2**

Course Code: 18U5MAS01 **No. of Hours: 2**

Objectives:

- Typeset mathematical formulae using LaTeX.
- Use the preamble of LaTeX file to define document class and layout options.
- Use nested list and enumerate environments within a document.
- Use tabular and array environments within LaTeX document.
- Use various methods to either create or import graphics into a LaTeX document.

UNIT I

The Basics- Simple typesetting – Fonts – Type size – The Document - Document class – Page style – Page numbering – Formatting lengths .

UNITII

Parts of a document – Dividing the document – Bibliography - Introduction – natbib – Bibliographic Databases-The BIBTEX program – BIBTEX style files – Creating a bibliographic database –

UNIT-III

Table of contents, Index and Glossary -Table of contents – Index – Glossary – Displayed Text - Borrowed words

UNIT –IV

Rows and Columns- Keeping tabs – Tables – Typesetting Mathematics - The basics – Custom commands – More on mathematics –Mathematics miscellany – New operators

UNIT V

The many faces of mathematics – Symbols – Typesetting Theorems- Theorems in LATEX – Designer theorems—The amsthm package – Housekeeping – . Several Kinds of Boxes - boxes – Paragraph boxes – Paragraph boxes with specific height .

Course outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Successfully install LaTeX and its related components on a home/personal computer;	6
CO-2	Use LaTeX and various templates acquired from the course to compose Mathematical documents, presentations, and reports;	1
CO-3	Access CTAN and other resources to obtain additional LaTeX packages.	2

Text Book:

LATEX TUTORIALS — A PRIMER Indian TEX Users Group, 2003 September- Donald Knuth.

Core course XII – Modern Algebra

Semester:VI **Credits: 5**

Course Code: 18U6MA12 **No. of Hours: 6**

Objectives:

- Characterize the solutions to a linear system in terms of linear combinations and span.
- Characterize a set of vectors and linear systems using the concept of linear independence. Construct dependence relations between linearly dependent vectors.
- Characterize linear transformations as onto, one-to-one.
- Solve linear systems represented as linear transforms.
- Express linear transforms in other forms, such as as matrix equations, and vector equations.

Unit I

Rings**:** Maximal and prime ideals – Homomorphism of rings – Field of quotients of an integral domain.[Chapter 4: 4.9 to 4.11]

Unit II

Rings**:** Ordered integral domain – Unique factorization domain(U.F.D) – Euclidean domain – Every P.I.D is a U.F.D . [Chapter 4: 4.12 to 4.18]

Unit III

Vector Spaces: Definition – Examples – Subspaces – Linear transformation – Span of a set. [Chapter 5:5.1 to 5.4]

Unit IV

Vector Spaces: Linear Independence – Basis and dimension – Rank and Nullity. [Chapter 5:5.5 to 5.7]

Unit V

Inner product spaces and Bilinear forms: Introduction – Definition – Examples – Orthogonality – Orthogonal complement – Bilinear forms – Quadratic forms .[Chapter 6: 6.1 to 6.3 & Chapter 8: 8.1 to 8.2]

COURSE OUTCOMES:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To simplify algebraic expressions, using the commutative, associative and Distributive properties.	2
CO-2	Use the definition of vector space to determine if a given set of vectors is a vector space.	3
CO-3	Determine if a subset of a vector space is a subspace.	4
CO-4	Determine if a given set of vectors is a basis for a vector space.	11
CO-5	Find the coordinates of a vector relative to a given basis.Compute the inner product of two vectors.	2

Text Book:

Dr. S. Arumugam and A. Thangapandi Isaac, Morden Algebra,2nd Reprint June 2005, Scitech publications (India) Pvt Ltd, Chennai .

Reference Books:

1. A.R.Vasistha, A first course in modern algebra, Krishna PrakasanMandhir, 9, Shivaji Road, Meerut (UP), 1983.

2. ViswanathaNaik, Modern Algebra, Emerald Publishers, 135, Anna Salai, Chennai , 2001.

Core course XIII – Real Analysis

Semester:VI **Credits: 5**

Course Code: 18U6MA13 **No. of Hours: 6**

Objectives:

The student is expected to be able to:

- To know the basic concepts of elementry set theory , functions, Real numbers, relations and grasp the ideas of upper bounds property and also verify the examples.
- To understand ideas of the Metric spaces and can see the functions reacting at a point which is continuous and also know about the open and closed sets on metric space.
- To enhance knowledge of more about open sets on metric space, connectedness, Completeness and Completeness on Metric space, to prove the theorems of those topics on metric space.
- To develop the knowledge of integration and know basic definitions of sets of measure zero and Riemann integral and grasp the ideas from properties of Riemann integral.
- To know briefly about the derivatives in which important theorem to be discussed such as Rolle's theorem, Chaine rule, Mean value theorem and fundamental theorem of calculus.

Unit I

Sets and functions: Sets and Elements – Operations on sets – Function – Real valued function – Equivalence – Countability – Real numbers –Least upper bounds - Problems. [Ch 1: 1.3 – 1.7]

Unit II

Continuous functions on a Metric spaces: Functions – Continuous at a point on the real line – Reformation – Functions continuous on a metric space – Open sets – Closed sets – Discontinuous function on R1. [Ch 5: 5.1 – 5.6]

Unit III

Connectedness, Completeness and Compactness: More about open sets – Connected sets – Bounded sets and Totally bounded sets – Complete metric spaces – Compact metric spaces – Continuous functions on Compact spaces – Continuity of the inverse function – Uniform continuity. [Ch 6: 6.1 – 6.8]

Unit IV

Calculus: Sets of measure zero – Definition of the Riemann integral – Existence of the Riemann integral – Properties of the Riemann integral
Ch 7: 7.1 – 7.4]

Unit V

Derivatives – Rolle's theorem – The law of the mean – Fundamental theorems of Calculus. [Ch 7: 7.5 – 7.8]

COURSE OUTCOMES:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Describe the definition of set theory , numbers and their property	2
CO-2	Recognize the abstract idea of a metric space and briefly know about the continuous at a point.	2
CO-3	Explain the concept of connected, compact, connected sets .	4
CO-4	Draw his own diagram for the Riemann integral and its property.	7
CO-5	Illustrate some examples from derivatives and know about the familiar theorems such as Rolle's theorem, The law of the mean and Fundamental theorems of Calculus.	7

Text Book:

Richard R. Goldberg, Methods of Real Analysis, IBM Publishing, New Delhi, 1970.

Reference Book:

1. M.K.Singal&Asha Rani Singal, A first course in Real Analysis, R. Chand & Co.1999.

.

2. Tom M. Apostel, Mathematical Analysis, Narosa Publications, NewDelhi, 2002

Core course XIV – Complex Analysis

Semester:VI **Credits: 5**

Course Code: 18U6MA14 **No. of Hours: 6**

Objectives:

- To introduce the theory of complex variable which is different from analysis of real variable.
- To learn the properties of complex valued function defined on the set of complex numbers.
- To introduce the concept of an analytic function, bilinear transformations, Taylor's, Laurent's series expansions complex integration and its properties.

Unit I

Analytic functions: Functions of complex variables – Limits – Theorems on Limit – Continuous functions – Differentiability – Cauchy Riemann equations – Analytic functions – Harmonic functions. [Ch 2: 2.1 – 2.8]

Unit II

Bilinear transformations: Elementary transformations – Bilinear transformations – Cross ratio – Fixed point of bilinear transformations – Some special bilinear transformations.[Ch 3: 3.1– 3.5]

Unit III

Complex integration: Definite integral – Cauchy's theorem – Cauchy theorem for Multiple Connected region-Cauchy's integral formula – Higher derivatives. [Ch 6: 6.1 – 6.4]

Unit IV

Series Expansions: Taylor's series – Laurent's series – Zero's of an analytic function –Removable Singularity-Poles-Essential Singularity. [Ch 7: 7.1– 7.4]

Unit V

Calculus of residues: Residues – Cauchy residue theorem –Argument theorem-Rouche's theorem-Fundamental theorem of Algebra- Evaluation of definite integrals. [Ch8 : 8.1 – 8.3]

COURSE OUTCOMES:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Determine continuity/differentiability/analyticity of a function and find the derivative of afunction.	7
CO-2	Understand about the bilinear transformation and cross ratio and fixed point.	7
CO-3	Use Cauchy's integral theorem and formula to compute line integrals and higher derivates	7
CO-4	Identify the isolated singularities and Compute innermost Laurent series at an isolated singularity and determine the residue.	4
CO-5	Use the residue theorem to compute evaluation of definite integrals.	4

Text Book:

S. Arumugam, A. Thangapandi Isaac, A. Sumasundaram,Complex Analysis, Scitech publications (India) Pvt. Ltd, Chennai, 2005.

Reference Books:

1. S.Venkatachalapathy, Complex Analysis, Margam publication, T.Nagar, Chennai.

2. Theodore W. Gamelin by Complex Analysis, Springer - Verlag, 2nd edition,2003.

3.P.Duraipandian&LaxmiDuraipandian, Complex Analysis, D.Muhilan Emerald Publishers, 135, Anna Salai, Chennai, 1988.

Core Course XV – Graph theory

Semester:VI **Credits: 4**

Course Code: 18U6MA15 **No. of Hours: 5**

Objectives:

- To give introduction to the basic concepts of Graph theory.
- To give applications of Graph theory in other disciplines.
- To study and develop the concepts of graphs, subgraphs, trees, Eulerian and Hamiltonian graphs.

Unit I

Graphs and subgraphs: Introduction – Definition – Examples – Degrees – Definition – Theorem 1and corollary – Theorem 2and problems – Subgraphs – definitions – Theorem 1 – Operations on Graphs – Definition – Theorem 1 – Problems. [Ch 2: 2.0 – 2.3 & 2.9]

Unit II

Introduction – Walks , Trails and paths – Definitions – Theorem 1, 2, 3 – Connectedness and components – Definitions – Theorem 1, 2, 3 – Definition – Distance – Theorem 1 – Definitions – Cut , Point , Bridge – Theorem 1,2,3,4 – Blocks – Definition – Theorem 1 – Connectivity – Definition – Theorem 1 – Definition. [Ch 4: 4.0 – 4.4]

Unit III

Introduction – Eulerian Graphs – Definition – Lemma 1 – Theorem 1 – Koningsberg Bridge Problem – Corollary I and II – Definition – Theorem – Fleury's Algorithm – Hamiltonian Graphs – Definitions – Theorem 1,2,3 – Lemma – Definition (closure) – Theorem 1, 2 – corollary – Theorem. [Ch 5: 5.0– 5.2]

Unit IV

Introduction – Characterization of Trees – Theorem 1 – Corollary – Theorem 2 with corollary – Theorem 3 – Center of a Tree – Definition – Theorem. [Ch 6: 6.0 – 6.2]

Unit V

Some Applications: Kruskal's Algorithm – Shortest Path problems – Transformation and Kinematic graph – Designing one way traffic systems. [Ch 11: 11. 1 – 11.5]

COURSE OUTCOMES:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Apply principles and concepts of graph theory in practical situations.	1
CO-2	Applications of graph theory in other disciples.	6
CO-3	The concepts of graphs, sub graphs, trees and connectivity.	6

Text Book:

S.Arumugam and S.Ramachandran, Invitation to Graph Theory, Scitech Publications, Chennai,2001.

Reference Book:

K.R.Parthasarathy, Basics of Graph Theory, TMH Publishing company, 2001.

Major Elective Course III – Operations Research

Semester:VI **Credits: 4**

Course Code: 18U6MAE07 **No. of Hours: 5**

Objectives:

- To develop computational skill and logical thinking in formulating industry oriented problems as a mathematical problem and finding solutions to these problems.
- To understand Sequencing Problem, Queuing theory, Inventory control and its Applications.
- To develop the Skills of Solving Network and Project Problems and its Applications.

Unit - I

Introduction – Definition of Inventory models – Type of inventory models – (i) Uniform Rate of Demand, infinite rate of production and no shortages. (ii) Uniform Rate of Demand, finite rate of replacement and no shortages. (iii) Uniform Rate of Demand instantaneous production with shortage – Book Works
– Problems.

Unit - II

Definitions – Newspaper boy problem – Discrete and continuous type cases – Problems – Inventory model with one and two price break – Problems.

Unit III

Introduction – Definition of steady state, transient state and queue discipline, characteristics of a queuing model – Applications of queuing model – Little's formula – classification of queues – Poisson process – Properties of Poisson process.Models:

(i) (M / M / I) : (∞/ FCFS)
(ii) (M / M / I) : (N / FCFS)
(iii) (M / M /S) : (∞/ FCFS) – Problems.

Unit IV

Introduction – Definition of network, event, activity, optimistic time, pessimistic time, the most likely time, critical path, total float and free float – Difference between slack and float – Phases of critical path in a PERT network – Difference between CPM and PERT – Problems.

Unit V

Definition of project, direct and indirect cost, crashing and crashing cost, cost slope – Crash duration – Time cost optimization algorithm – Resource allocation and scheduling – Problems.

COURSE OUTCOMES:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	To the skill and logical thinking in formulating industry oriented problems as a mathematical problem and finding solutions to these problems.	6
CO-2	To understand Sequencing Problem, Queuing theory, Inventory control and its Applications.	10
CO-3	To know the Skills of Solving Network and Project Problems and its Applications	6

Text Book:

P.K.Gupta ,Manmohan and KantiSwarup, Operations Research, 9th Edition Sultan Chand & Sons, Chennai, 2001.

Reference Books:

1. S.Kalavathy, Operations Research, 2nd Edition, Publisging House Pvt.Ltd, New Delhi, 2002.

2. P.K.Gupta and D.S.Hira, Operations Research, 2nd Edition, S. Chand &Co, New Delhi, 1986.

3. HamdyTaha, Operations Research, Prentice Hall India, New Delhi, 2002.

Major Elective Course III – Mathematical Modeling

Semester:VI **Credits: 4**

Course Code: 18U6MAE08 **No. of Hours: 5**

Objectives:

- To introduce the basic concepts of Modeling.
- To study the different mathematical models involving differential equations, graph theory etc.

Unit I

Mathematical Modelling through Ordinary Differential Equations of First order : Linear Growth and Decay Models – Non-Linear Growth and Decay Models – Compartment Models – Dynamic problems – Geometrical problems.

Unit II

Mathematical Modelling through Systems of Ordinary Differential Equations of First Order : Population Dynamics – Epidemics – Compartment Models – Economics – Medicine, Arms Race, Battles and International Trade – Dynamics.

Unit III

Mathematical Modelling through Ordinary Differential Equations of Second Order : Planetary Motions – Circular Motion and Motion of Satellites – Mathematical Modelling through Linear Differential Equations of Second Order
– Miscellaneous Mathematical Models.

Unit IV

Mathematical Modelling through Difference Equations : Simple Models – Basic Theory of Linear Difference Equations with Constant Coefficients –

Economics and Finance – Population Dynamics and Genetics – Probability Theory.

Unit V

Mathematical Modelling through Graphs : Solutions that can be Modelled Through Graphs – Mathematical Modelling in Terms of Directed Graphs, Signed Graphs, Weighted Digraphs and Unoriented Graphs.

Text Book:

J.N. Kapur, Mathematical Modelling, Wiley Eastern Limited, New Delhi, 1988.

Reference Book:

Kapur, Mathematical Models in biology and Medicine, EWP, New Delhi, 1985.

Major Elective Course III – Number theory

Semester:VI **Credits: 4**

Course Code: 18U6MAE09 **No. of Hours: 5**

Objectives:

- To highlight the niceties and nuances in the world of numbers.
- To prepare the students for coding through congruence.

Unit I

The Division Algorithm – The g.c.d. – The Euclidean Algorithm – The Diophantine Equation ax + by = c.

Unit II

The Fundamental theorem of arithmetic. The sieve of Eratesthenes – The Goldbach conjecture – basic properties of congruence.Quatradic x^2 type

Unit III

Special Divisibility tests – Linear congruences – The Little Fermat‘s theorem – Wilson‘s theorm.

Unit IV

The functions random – The Mobius inversion formula – The greatest integer function.

Highest power of prime in factorial n.

Unit V

Euler‘s Phi – function – Euler‘s theorem – Some properties of the Phi – function.

Text Book:

1. David M. Burton, Elementary Number Theory, Universal Book Stall, 2001.

Reference Book:

1. S.Kumaravelu and SuseelaKumaravelu, Number Theory, MurugaBhavanam, Chidambara Nagar, Nagarkoil , 2002.

Skill Based Elective course II – Office Automation & Basics of Internet Semester:VI **Credits: 2**

Course Code: 18U5MAS02 **No. of Hours:2**

UNIT – I

Getting Started: Starting a Program – Identifying Common Screen Elements – ChoosingCommands – Finding Common Ways to Work – Getting Help with Office.

UNIT – II

MS-WORD: Learning Word Basics – Formatting a Word Document – Working with Longer Document.

UNIT – III

MS-EXCEL: Creating a Simple Spreadsheet – Editing a Spreadsheet – Working with Functions and Formula – Formatting Worksheets – Completing Your Spreadsheet – Creating Charts.

UNIT – IV

MS-POWERPOINT: Creating and Viewing Presentations – Editing a Presentation –Working with Presentation Special Effects.

UNIT – V

Internet and World Wide Web – Electronic Mail – Intranets.

TEXT BOOK:

1. MS office 2000 For Every One - Vikas Publishing House – Pvt Ltd., Sanjay Saxena. (UNIT – I, II, III, IV)
2. Introduction to Computers – Alex Leon, Mathew Leon (UNIT – V).

Allied Mathematics

Allied Course I – Algebra, Differential Calculus, Integral calculus and Fourier series

(For B.Sc. Physics, Chemistry, Computer Science , Electronics and B.C.A Major Students admitted from the year 2018 – 2019 Onwards)

Semester:I\III **Credits: 4**

CourseCode:18U1MAA01 / 18U3MAA01 **No. of Hours: 6**

Objectives:

- To develop methods and tools to tackle multiple natural hazards within a common framework.
- Solve a rational and polynomial inequality algebraically.
- To Calculate higher order derivatives. Apply higher order derivatives in application problems. We have examined the first derivative of functions.
- integration is a process that finds the integral of a product of functions in terms of the integral of their derivative and antiderivative
- understand Fourier series representation of Periodic signals. Introduction to Fourier Series: A signal is said to be a continuous time signal if it is available at all instants of time

Unit I

Eigen values and Eigen Vectors – Cayley Hamilton Theorem (Statement only) and its – Polynomial Equations – Imaginary and Irrational Roots – Descarte's rule of signs – Problems.

Unit II

Standrad n^{th} Derivative – Leibnitz formula for nth Derivative – Partial Differtiation – Homogeneous Functions – Problems.

Unit III

Radius of Curvature in Cartesian form – Radius of Curvature in Polar form.

Unit IV

Integral Calculus – Integration by parts – Definite integrals and its properties – Reduction formulae for $\int_0^{\frac{\pi}{2}} \sin^n x\,dx$, $\int_0^{\frac{\pi}{2}} \cos^n x\,dx$, $\int_0^{\frac{\pi}{4}} \tan^n x\,dx$, $\int \sec^n x\,dx$, $\int \operatorname{cosec}^n x\,dx$, $\int \cot^n x\,dx$, $\int_0^a x^n e^{ax}\,dx$, – Problems.

Unit V

Fourier series: Definition – To find the Fourier coefficients of periodic functions of period 2π – Even and odd functions – Half range.

COURSE OUTCOMES:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	If you through a series of exercises designed to develop your approach to study and learning at a distance and helped to improve your confidence as an independent learner.	11
CO-2	The nth derivative of a function is depend upon the type of function and has to be derived for particular funcction. Polynomial function will vanish to become zero after differentiating them (n+1)	3
CO-3	Work with matrices and determine if a given square matrix is invertible. Learn to solve systems of linear equations and application problems requiring them.	6

Text Books:

Dr.P.R.Vittal, Allied mathematics, Margham Publications, 24, RameswaramRoad,T.Nager, Chennai , 2000.

Reference Books:

ingaravelu, Allied Mathematics, Meenakshi Traders, Chennai, 2002.

- **NOTE: 80% of problem and 20% of theory (Theorems and proof are not expected)**

Allied Mathematics

Course II –Vector, Differential equations and Laplace Transforms. (For B.Sc. Physics, Chemistry, Electronics, Computer Science and B.C.A Major students admitted from the year 2018 – 2019 Onwards)

Semester:II\IV **Credits: 4**

CourseCode:18U2MAA02 / 18U4MAA02 **No. of Hours: 6**

Objectives:

- To introduce vector calculus and study the relation between surface and volume integrals.
- Interpret derivatives of vector valued functions as velocity and acceleration functions
- Be able to Problems for Gauss's Divergence theorem . To understand the Stoke's theorem and Green's theorem.
- Learn to solve application problems modeled by a second-order differential equation and Partial differential Equation by eliminating arbitrary constants and function.

Unit I

Vector differentiation: Directional derivatives of a scalar point function- Definition of gradient, divergence, curl, solenoidal and irrotational – problems- Vector identities (property only).

Unit II

Gauss's Divergence theorem – Stoke's theorem – Green's theorem – (statement only) – Problems.

Unit III

Second order differential equation with constant coefficient – particular integral of the type e^{ax} ,cosax or sinax , x^n , e^{ax} V where V is any function of

cosax or sinax or x or x^2 or xsinax or xcosax. Formation of Partial differential Equation by eliminating arbitrary constants and arbitrary functions –Problems.

Unit IV

Laplace transforms – Definition – Standard formula – Elementary theorems – Problems.

Unit V

Inverse Laplace transforms – Standard formula – Elementary theorems – Applications to solving second order differential equations with constant coefficients – Problems.

COURSE OUTCOMES:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Utilize vector and scalar functions in the description of physical quantities.	9
CO-2	Find the problems for the theorems.	1
CO-3	Find the problems for the second order differential equation	4

Text Books:

Dr.P.R.Vittal, Allied Mathematics, Margham Publications, 24, RameswaramRoad ,T.Nager, Chennai , 2002.

Reference Books:

ingaravelu, Allied Mathematics, Meenakshi Traders, Chennai, 2002.

Allied I– NUMERICAL & STATISTICAL METHODS

(For B.Sc (CS)., BCA., B.Sc(IT) students admitted from the year 2018 – 2019 onwards)

Semester:I/III **Credits: 5**

CourseCode:: 18U1MAA03/18U3MAA03 **No. of Hours: 5**

Objectives:

- How to calculate and apply Measures Of Central Tendency - grouped and ungrouped data cases.
- How to calculate and apply Measures Of Dispersion - grouped and ungrouped data cases.
- Compute and interpret the results of Regression and Correlation Analysis.
- Students should be able to perform a hypothesis test using the t statistic. This includes computing basic statistics for the sample (mean and variance) and computing the estimate standard error the sample mean.
- Learn the Chi-Square test for Independence as well as Goodness of Fit.
- To make the students gain wide knowledge in probability this plays a main role in solving real life problems.

UNIT I :

Algebraic and Transcendental Equations: Bisection Method – Iteration Method – The Method of False Position – Newton- Raphson – Method.

UNIT II :

Interpolation with equal intervals – Newton forward and backward formula - Central Difference Interpolation formula – Gauss forward and backward formula

UNIT III :

Statistics: Definition-Collection-Primary and Secondary Data-Measures of Central tendency-Mean –Median- Mode-Geometric mean-Harmonic Mean.

UNIT IV :

Measure of Dispersion: Range-Quartile Deviation-Mean Deviation-Standard Deviation and Co efficient of Variation.

UNIT V :

Correlation Coefficient : Scatter diagram method-Karl pearson method- Rank correlation coefficient– Linear regression – Method of least squares

NOTE: 80% of problem and 20% of theory (Theorems and proof are not expected)

COURSE OUTCOMES:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Provide a summary measure that attempts to describe a whole set of data with a single value that represents the middle or centre of its distribution.	6
CO-2	Provide information about how much variation there is in the data, including the range, mean and standard deviation.	10
CO-3	Statistical terms we use correlation to denote association between two quantitative variables.	10

TEXT BOOKS :

1. S.S. Sastry, Introductory Methods of Numerical Analysis, Prentice Hall of India, Pvt. Ltd., 1995.(For Units I, II).

2.PA. Navanitham, Business Mathematics And Statistics, Jai Publishers, Trichy-21.

BOOKS FOR REFERENCE: 1. S.Kalavathy, Numerical Methods, Vijay Nicole, Chennai, 2004.

Allied II– DISCRETE MATHEMATICS

(For B.Sc (CS)., BCA., B.Sc(IT) students admitted from the year 2018 – 2019 onwards)

Semester:II/IV **Credits: 5**

CourseCode:: 18U2MAA04/18U4MAA04 **No. of Hours: 5**

Objectives:

- Express a logic sentence in terms of predicates, quantifiers, and logical connectives
- Apply algorithms to problems including searching algorithms, base conversion algorithms, and the Euclidean algorithm.
- Perform basic matrix operations including sums, products, and transpose and perform 0-1 matrix operations.

Unit-I

Mathematical Logic : Logical Statements - Propositional Calculus - The Negation -Conjunction - Disjunction - Tautologies - Logical Equivalence- The algebra of propositions- Problems.. Relation and Functions: Relation - Equivalence relation - Functions - Problems.

UNIT - II

Ordered sets and Lattices : Coset-Product Set and Order- Hasse Diagram of Partially Ordered Sets - Lattices-Lattices as Partially Ordered Sets - Lattices as Algebraic System - Sub Lattices - Product of two Lattices - Complete, Complemented , Distributive, and Modular Lattices - Problems. only.

UNIT - III

Boolean Algebra and Switching Circuits : Introduction – Boolean Functions - Normal Form - Fundamental form of Boolean Functions - Applications to Switching Networks - Problems.

UNIT - IV

Matrices and Linear Equations – Rank - Cramer's rule-problems. Characteristic Roots and Vectors of a Matrix : Characteristic equation and roots- Cayley Hamilton Theorem – Characteristic - Vectors of a Matrix - Problems.

UNIT - V

Combinatorics : Introduction - Sum, Product rules Factorial - Permutations - Circular Permutations - Combinatorics - Value of nCr - Pigeonhole Principle - Problems.

NOTE: 80% of problem and 20% of theory (Theorems and proof are not expected)

COURSE OUTCOMES:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Write an argument using logical notation and determine if the argument is or is not valid.	3
CO-2	Understand the basic principles of sets and operations in sets.	4
CO-3	Demonstrate the ability to write and evaluate a proof or outline the basic structure of and give examples of each proof technique described.	3

TEXT BOOK

1. B.S.Vatsa . Suchi Vastsa, Discrete Mathematics, New Age International Publishers, Fourth Revised edition

REFERENCE BOOK

1. Prof.V.Sundaresan, K.S. Ganapathy Subramaniyam, K.Ganesan., Discrete Mathematics, Tata Me Graw Hill, New Delhi., 2000.

2.L.Lovarz, J.Pelikan, K.Vexztergombi.., Discrete Mathematics, Springer International Edition,2002

Non-Major Elective Course-Matrix Algebra

Semester:III **Credits: 2**

CourseCode:18U3MAN01 **No. of Hours: 2**

Objectives:

- To lay a good foundation for the study of higher mathematics.

Unit I:

Definition of Matrix – Addition,Subtraction,Multiplication of matrices.

Unit-II

Transpose of matrix-Adjoint of matrix-Inverse of the matrix.

Unit-III

Symmetric,SkewSymmetric,Hermitian and Skew Hermitian Matrix-problems.

Unit-IV

Rank of the matrix-Definition-Finding Rank of the matrix-problems upto 3X3 matrix.

Unit-V

Cayley Hamilton theorem(Statement only)-problems only.

Text Book:

Dr.P.R.Vittal, Algebra, Analytical Geometry and Trigonometry,Margham Publications, 24,Rameswaram Road , T.Nager Chennai , 2002.

B.Sc.,Mathematics

Non-Major Elective Course- Numerical Methods

Semester:III **Credits: 2**

CourseCode:18U4MAN02 **No. of Hours: 2**

Objectives:

- To introduce numerical methods for solving algebraic and simultaneous equations.

Unit I

Solution of algebraic and transcendental Equations – Bisection method – Newton Raphson method – Problems.

Unit II

Finite difference –Definition – First difference- Higher difference – Difference table-Expression of any value of Y in terms of the initial value YO and Difference.

Unit III

Newton's forward difference –Simple problems.

Unit IV

Newton's Backward difference –Simple problems.

Unit V

Central differences- Properties of the operator D - Simple problems.

Text Books:

1. S.S.Sastry, Introductory Methods of numerical analysis, Prentice Hall of India Pvt Ltd, New Delhi, 2000.

2. Dr.M.K.Venkataraman, Numerical Methods in Science and Engineering (2nd edition, Revised). The National Publishing Company,Chennai.

SELVAMM ARTS & SCIENCE COLLEGE, (Autonomous)

Nationally Accredited at 'A' Grade by NAAC

UGC Recognized 2(f) and 12(B) Institution

Affiliated to Periyar University, Salem

NAMAKKAL

Department of microbiology

SYLLABUS

CHOICE BASED CREDIT SYSTEM

SEMESTER PATTERN

B.Sc. Microbiology

(2018-2019 onwards)

1. Condition for Admission:

A candidate who has passed Higher Secondary examination in any one of the biological sciences (Academic/Vocational stream) under higher secondary board of examination, Tami Nadu or as per norms set by the Government of Tamil Nadu or an examination accepted as Equivalent thereto by the Syndicate subject to such conditions as may be prescribed thereto are permitted to appear and qualify for the B.Sc., Microbiology degree examination of this college after a course of study of three academic years.

2. Duration of the Course:

The course for the degree of Bachelor of Microbiology shall consist of three academic years divided into six semesters.

3. Course of Study

The course of study shall comprise instruction in the following subjects according to the syllabus and books prescribed from time to time.

4. Examinations

The theory examination shall be three hours duration to each paper at the end of each semester. The candidate failing in any subject(s) will be permitted to appear for each failed subject(s) in the subsequent examination. The practical examinations for UG programme should be conducted at the end of every semester.

4. (a) Submission of record note books for practical examinations

Candidates appearing for practical examinations should submit bonafide Record Note Books prescribed for practical examinations, otherwise the candidates will not be permitted to appear for the practical examinations. However, in genuine cases where the students, who could not submit the record note books, they may be permitted to appear for the practical examinations, provided the concerned Head of the department from the institution of the candidate certified that the candidate has performed the experiments prescribed for the course. For such candidates who do not submit Record Books, zero (0) marks will be awarded for record note books.

5. Revision of Regulations and Curriculum

The Autonomous board may revise /amend/ change the Regulations and Scheme of Examinations, if found necessary.

6 (a) . Passing Minimum – Theory

The candidate shall be declared to have passed the examination if the candidate secure Not less than 40 marks out of 100 (CIA – 10 marks out of 25 and EA – 30 marks out of 75) in the University examination in each theory paper.

6 (b) . Passing Minimum – Practical

The candidate shall be declared to have passed the examination if the candidate secure not less than 40 marks put together out of 100 (CIA – 16 marks out of 40 and EA – 24 marks out of 60) in the University examination in each practical paper.

7. Objectives and Focus of the Programme

- To provide an integrated and conceptual and unique training platform for Microbiology at a National level, at par with international standards.
- To provide a comprehensive theoretical knowledge of and practical training in applied areas of Microbiology.
- To strengthen the basic research and to produce trained Scholars for R&D companies and public health laboratories.

8. Commencement of this Regulation

These regulations shall take effect from the academic year 2018-19, i.e, for students who are to be admitted to the first year of the course during the academic year 2018- 19 and thereafter.

Vision

Education with ethical values resulting in knowledge and skills, valued by industry and society, leading to employability and leadership.

Mission

To provide quality education and contribute to the ever expanding knowledge and skills in the hospitality industry

Programme Outcome (POs)

PO 1: Communicate Effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, Writing) skills with advanced technologies.

PO 2: Environment Concern - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

Selvamm Arts & Science College (Autonomous)
Namakkal - 637 003, Tamil Nadu

Sem.	Course code	Course	Title of the course	Hrs/wk	Credits	Marks		
						CIA	EA	TOTAL
I	18U1FTA01	Part I	Tamil –I	5	4	25	75	100
	18U1FEN01	Part II	English-I	5	4	25	75	100
	18U1MB01	Core I	Fundamentals of Microbiology	6	4	25	75	100
	18U1MBP01	Core practical	Core practical –I	5	3	40	60	100
	18U1BCA01	Allied -I	Biochemistry –I	4	4	25	75	100
		Allied practical - I	Biochemistry practical- I	3	-			
	18U1VE01	Part IV-B Value Education-I	Yoga and Practices	2	1	25	75	100
	Total			**30**	**20**			**600**
II	18U2FTA02	Part I	Tamil II	5	4	25	75	100
	18U2FEN02	Part II	English II	5	4	25	75	100
	18U2MB02	Core II	Microbial physiology	6	4	25	75	100
	18U2MBP02	Core Practical	Major practical II	5	4	40	60	100
	18U2BCA02	Allied -II	Biochemistry II	4	4	25	75	100
	18U2BCAP01	Allied practical -I	Biochemistry practical	3	3	40	60	100
	18U2ES01	Part-IV-B	Environmental studies	1	1	25	75	100
	18U2VE02	Part IV-B-Value education-II	Values for life	1	1	25	75	100
		Total		**30**	**25**			**800**
III	18U3FTA03	Part 1	Tamil III	5	4	25	75	100
	18U3FEN03	Part II	English III	5	4	25	75	100
	18U3MB03	Core III	Immunobiology	6	4	25	75	100
	18U3MBP03	Core practical II	Major practical III	6	4	40	60	100
	18U3STA07	Allied –III	Biostatistics	6	4	25	75	100
	18U3BTN01	Part IV-A-NMEC	Applied Biotechnology	2	2	25	75	100
		Total		**30**	**22**			**600**
IV	18U4FTA04	PartI	Tamil IV	5	4	25	75	100
	18U4FEN04	Part II	English IV	5	4	25	75	100
	18U4MB04	Core IV	Microbial Genetics	5	4	25	75	100
	18U4MBP04	Core Practical	Major Practical IV	6	4	25	75	100
	18U4CSA04	Allied	Computer Application in Biology	4	4	25	75	100
	18U4CSAP04	Allied practical	Allied practical II	3	3	25	75	100

		Part IV-A-NMEC		2	2	25	75	100
			Total	**30**	**25**			**700**
V	18U5MB05	Core V	Medical Bacteriology	5	4	25	75	100
	18U5MB06	Core VI	Medical Virology	5	4	25	75	100
	18U5MB07	Core VII	Medical Parasitology	5	4	25	75	100
	18U5MBP05	Core Practical	Major Practical-V	5	4	40	60	100
	18U5MBE01	Elective 1	Medical Mycology	4	3	25	75	100
	18U5MBE02	Elective 2	Microbial Biotechnology	4	3	25	75	100
	18U5MBS01	Part IV-A- SBEC	Clinical Microbiology	2	2	25	75	100
		Part-V	Extension activities	(80)	2	-	-	-
			Total	**30**	**26**			**600**
	Note:Extension activities 80 hrs outside the class hrs(From Semester II upto Semester V)							
VI	18U6MB08	Core VIII	Soil and Agricultural Microbiology	6	4	25	75	100
	18U6MB09	Core IX	Environmental and Pharmaceutical Microbiology	5	4	25	75	100
	18U6MB10	Core X	Food, Dairy and Poultry Microbiology	5	4	25	75	100
	18U6MBP06	Core Practical	Major Practical VI	6	4	40	60	100
	18U6MBE03	Elective 3	Bioprocess Technology	4	3	25	75	100
	18U6MBS02	Part IV-A-SBEC	Recombinant DNA Technology	2	2	25	75	100
	18U6STE01		Skills (LSRW) through English (STE)	2	1	25	75	100
			Total	**30**	**22**			**700**
	Total Hrs & Credit for 3 years			**180**	**140**	**-**	**-**	**4000**

NON MAJOR ELECTIVE COURSES - (NMEC)

Non Major Elective Subjects offered by the Department of microbiology

- The department can offer any one of the subjects to the other major subject students in each sem

Part	Sem.	Course Code	Course	Credits	Hours	Marks		
						CIA	EA	Total
IV-A	III	18UMBN01	General hygienic & sanitary practices	2	2	25	75	100
		18UMBN02	Principles of bio instrumentation	2	2	25	75	100
		18UMBN03	Microbes in daily life	2	2	25	75	100
	IV	18UMBN04	Corporate Microbiology	2	2	25	75	100
		18UMBN05	Mushroom culture	2	2	25	75	100

SBEC – Skill Based Elective Courses

Part	Sem.	Course Code	Course	Credits	Hours	Marks		
						CIA	EA	Total
IV-A	V	18U5MBS01	SBEC- Clinical Microbiology	2	2	25	75	100
	VI	18U6MBS02	SBEC- Recombinant DNA Technology	2	2	25	75	100

Programme specific outcomes

PSO-1	Demonstrate advanced knowledge and understand the central facts and concepts of lifescience.
PSO-2	Acquire knowledge and understanding of organism biology and genetics, evolution, molecular biology and basic biological chemistry. Instill the intellectual skills to analyze and solve biology-related problems, formulate and test hypothesis using experimental design.
PSO-3	Demonstrate an understanding of professional ethics in science and of the principles that can guide ethical decision-making in biological controversies.
PSO-4	Explore the scientific literature effectively and use computational tools. Communicate ideas and principles effective through oral presentations, computer based tools and written reports.
PSO-5	Acquires knowledge resources, time and work independently as well as in multidisciplinary team towards a common goal/outcome.
PSO-6	Graduates will acquire practical skills- plan & execute experimental techniques independently as well as to analyse & interpret data.
PSO-7	Graduates will effectively know the concept of metabolism,such as anabolic and catabolic activities in organisms
PSO-8	Demonstrate the physiological functions of eukaryotic and prokaryotic cells along with its function
PSO-9	Analyze and apply latest laboratory technologies to solve problems in the areas of infection sites& critical thinking.
PSO-10	Study about instrumentation and their research applications

SEMESTER – I

Hrs	**6**
Cred.	**4**
Code	**18U1MB01**
Marks	**100**

CORE I- FUNDAMENTALS OF MICROBIOLOGY

Objectives:

Fundamentals of Microbiology deals with

- Basic concepts of microorganisms, Occurrence & its characteristics.
- Techniques for culture, isolation and identifications.
- Various Microorganisms and its importance.

UNIT-I - Definition and scope of Microbiology – History and recent developments – Spontaneous generation – Biogenesis Contributions of Leeuwenhoek, Louis pasteur, Robert koch, Edward Jenner and Fleming. Occurrence of Microbes. Microscope – Principles, working mechanism and application of Simple and compound Microscope – Dark field – Phase contrast - Fluorescence and Electron Microscopy – SEM and TEM. Staining techniques.

UNIT II - Sterilization Techniques – Principles and methods. Sterility control for dry heat and moist heat. Disinfection and chemical agents – Mode of action. Culture Techniques. Pure culture techniques – Isolation Techniques. Anaerobic culture technique Wright's Tube, Roll tube method, Anaerobic Jar.

UNIT III–Classification of Bacteria - Structure and organization of bacterial cell, Gram positive and Gram negative bacterial cell wall.

UNITIV–Mycology and Protozoa – importance of fungi, distinguishing characteristics of fungi, morphology, reproduction, cultivation and Classification of fungi and occurrence of Protozoa, morphology, reproduction of Protozoa.

UNIT V -Algae – occurrence of Algae, characteristics of fungi and Classification and Applications of Algae.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Know various Culture media and their applications and also understand various physical and chemical methods of sterilization	01
CO2:	Understand the basic microbial structure and function and study the comparative characteristics of prokaryotes and eukaryotes.	08
CO3:	Demonstrate theory and practical skills in microscopy and their handling techniques and staining procedures.	06

TEXT BOOKS

1. Pelczar Tr. MJ, Chan ECS &Kreig NR – Fifth edition. Microbiology MC Graw-Hill Inc., New York.

REFERENCES

1. Dubey RC and Maheswari DK (2005). A Text book of Microbiology. S. Chand &Company Ltd., New Delhi.
2. SundaraRajan S (2003). College Microbiology. Volume 1 & 2. Revised Edition, Vardhana Publications, Bangalore. Price Rs.180/- + Rs.171/-.
3. Powar CB and Daginawala HF (2005). General Microbiology, Volume I & II, 8th Edition, Himalaya Publishing House, Mumbai
4. Robert F Boyd (1984). General Microbiology. Times Mirror/Mosby College Publishers.
5. Prescott LM, JP Harley and DA Klein (1993). Microbiology, 2nd Edition, WM, C Brown Publishers.

SEMESTER – I

Hrs	**4**
Cred.	**4**
Code	**18U1BCA01**
Marks	**100**

ALLIED PAPER-BIOCHEMISTRY –I

Objectives:

- Mainly to know the existence of biomolecules in nature and living things
- To understand biomolecules importance
- To know on what basis proteins and enzymes are classified
- To know mode of action of enzymes and membrane.

UNIT-I - Carbohydrates: Introduction, classification, monosaccharide-structure, stereo isomerism, structural isomers,Mutarotation and chemical reactions. Oligosaccharides, Disaccharides Structure and importance of sucrose, lactose and Maltose.Polysaccharide- Structure and application of homopolysaccharide and heteropolysaccharide.

UNIT-II - Amino acids-classification, Essential& non-essential amino acids, structure& properties. Proteins-definition, classification &functions(Primary and secondary structure of protein.

UNIT-III - Lipids-classification, physical and chemical properties, Saturated and unsaturated fatty acids. Structure of cell membrane and transport (Fluid Mosaic Modal).

UNIT-IV - Vitamins –classification, occurrence, deficiency, symptoms, biochemical functions of fat soluble and water soluble vitamins

UNIT-V - Enzymes –definition, classification with example, active site, lock&key model, induced fit hypothesis. Enzyme units-kinetics- Enzyme inhibition, Iso-enzymes, Co-enzymes, Factors affecting enyme activity.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Have knowledge of the structure/conformational freedom of biomolecules, examples proteins, DNA/RNA.	01
CO2:	Be able to understand the basic concept of biomolecules in living organsm.	02
CO3:	Students will be able to demonstrate an understanding of biochemical principles.	05

TEXT BOOKS:

1. Principles of Biochemistry- **David. L. Nelson, Michael M. Cox, Lehninger**

2. Biochemistry- **U. Sathyanarayana**, **Chakrapani;** Edition 2 ;2007 Books and allied (P) Ltd.,

REFERENCE BOOKS:

1. Jain JL (2003).fundamentals of biochemistry,S.chand&companyLtd.,New Delhi.

2. Deb A.C.,(2004), concepts of biochemistry, (Theory and Practical), Books and Allied (p) Ltd., Kolkata.

3. Satyanarayana U (2005). Essentials of Biochemistry,Books and Allied (p) Ltd., Kolkata.

4. Veerakumari L (2004). Biochemistry. MJP Publishers, A Unit of Tamil Nadu Book House,Chennai.

SEMESTER - I

Hrs	**5**
Credit	**3**
Code	**18U1MBP01**
Marks	**100**

FIRST YEAR PRACTICAL-I

Max. Marks 100

Practical Exam. Hours: 7 hours/day (End of first semester)

FUNDAMENTALS OF MICROBIOLOGY

Objectives:

Practical Paper I deal with

- Basic Techniques to handle the Microorganisms.
- Handling of Instruments and Laboratory safety measures
- Principles of Microbiology.
- Methods for Microbiology.

1. Sterilization Techniques

2. Staining techniques

    a. Simple

    b. Differential staining (Gram's and Ziehl-Neelsen),

    c. Special staining (Spore and Capsular staining methods),

3. Pure Culture Techniques

    a. Liquid media- Peptone water, Nutrient broth.

    b. Solid media- Nutrient agar (Agar slant, Agar plate)

    c. Enriched Medium- Blood agar

    d. Differential medium - Mac Conkey agar.

    e. Enrichment Medium - Selenite F broth

4. Enumeration of Microorganisms.

Pour plate, Spread Plate, cultivation of anaerobic bacteria

Text Book

1. Alcamo, Fundamentals of Microbiology, Blackwell Publications

REFERENCES

1. Aneja KR (2005). Experiments in Microbiology, Plant pathology and Biotechnology. 4th Edition, New Age International Publishers, Chennai. Price Rs.225/-.
2. Dubey RC and Maheswari DK (2004). Practical Microbiology 1st Edition, S.Chand& Company Ltd., New Delhi.
3. Kannan N (2003). Handbook of Laboratory Culture Media, Reagents, Stains and Buffers. Panima Publishing Corporation, New Delhi. Price Rs.395/-.

Hrs	3
Cred.	3
Code	18U2BCAP01
Marks	100

SEMESTER - II

ALLIED BIOCHEMISTRY PRACTICAL -I

1. Qualitative analysis:

i) Analysis of carbohydrates-Glucose, fructose, ribose, sucrose, lactose&starch

ii) Analysis of amino acids-Tyrosine, Arginine, Methionine, Cystine and histidine

2. Preparation:

i) Starch from potato

ii) Casein from milk

iii) Lecithin from egg yolk

3. Estimation:

i) Estimation of protein by Lowry's method.

ii) Estimation of ascorbic acid by 2,6-di chlorophenol indophenol dye

iii) Determination of acid number (Demonstration)

iv) Determination of saponification value (Demonstration)

v) Estimation of glucose by orthotoludine method

4. Techniques:

i) Separation of amino and sugars by ascending paper chromatography

ii) Separation of lipid by TLC

REFERENCES:

1. An introduction to practical biochemistry by David T Plummer
2. Laboratory manual in biochemistry by Pattabiraman&acharya
3. Practical biochemistry by Jayaraman

SEMESTER – II

Hrs	**6**
Cred.	**4**
Code	**18U2MB02**
Marks	**100**

CORE- II- MICROBIAL PHYSIOLOGY

Objectives:

Microbial Physiology deals with:

- Various physiological conditions for its occurrence in nature.
- Various systems for energy uptake and utilizations.
- Various mechanisms for the synthesis of microbial metabolites.

UNIT I– Cellular structures of prokaryotes and eukaryotes – Ultrastructure and Functions of Prokaryotic cell wall, flagella, slimelayer, capsule, pili, cytoplasmic membrane and cytoplasmicinclusions – Sporulation and its mechanism – Structure andfunctions of cyanobacteria.

UNIT II – Growth of bacteria - nutritional requirements –factors affecting growth – growth curve, Generation time– Determination of growth Culture techniques.

UNIT III - Metabolism – ATP Synthesis & Utilization – (Photophosphorylation, Oxidative phosphorylation, Substrate level phosphorylation).Metabolic pathways – EMP, TCA,pentose phosphate pathway, Electron transport chainandglyoxylate cycle.

UNIT IV - Anaerobic respiration-sulphur, nitrogenous compounds and C02 as a final electron acceptor- Fermentation: Alcoholic fermentation, mixed acid fermentation, lactic acid fermentation

UNIT V - Photosynthesis - Characteristics and types of Photosynthetic Prokaryotes.C02 fixation Oxygenic and Anoxygenic- Bioluminescent bacteria.

Co.No	Upon completion of this course , students will be able to	PSO addressed

CO1:	Learn the basics of various characteristics features of growth and nutritional requirements of bacteria.	02
CO2:	Know the basics of metabolism, anaerobic respiration and photosynthesis of bacteria.	07
CO3:	To inculcate knowledge in cell divisions, functions and microbial physiology.	08

TEXT BOOKS

1. PelczarJr M.J., Chan E.C.S. and Kreig N.R (1993). Microbiology. McGraw Hill. Inc.New York.

REFERENCES

1. Dubey RC and Maheswari DK (2005). A Text book of Microbiology. S. Chand &Company Ltd., New Delhi.
2. SundaraRajan S (2003). College Microbiology. Volume 1 & 2. Revised Edition, Vardhana Publications, Bangalore. Price Rs.180/- + Rs.171/-.
3. Powar CB and Daginawala HF (2005). General Microbiology, Volume I & II, 8th Edition, Himalaya Publishing House, Mumbai
4. John G. Holt, Noel R. Krieg, Peter H.A, James T. Staley and Stanely T. Williams (2000). Bergey's Manual of Determinative Bacteriology – Ninth Edition, Lippincott Williams and wilkins Publishers.
5. Prescott .M, JP Harley and D.A. Klein (1993). Microbiology 2nd edition, Brown Publishers.
6. Robert F. Boyd, (1998). General Microbiology, 2nd edition. Times/Missor/Mosby College Publishers.
7. Salle A.J (1992). Fundamental Principles of Bacteriology. 7th edition, McGraw Hill Publishers, New York.
8. Michael T. Madigan, John M. Martin K, Jack Parker (2003). Brock – Biology of Microorganisms – Tenth Edition, Prentice Hall, Pearson Education, Inc New Jercy.
9. Albert G. Moat, John W. Foster and Michael P. Spector (2002). Microbial Physiology. Fourth Edition. John Wiley and Sons. IncNew York.

SEMESTER – II

Hrs	**4**
Cred.	**4**
Code	**18U2BCA02**
Marks	**100**

ALLIED PAPER- BIOCHEMISTRY-II

Objectives:

- To understand buffers importance
- To know viscous nature of liquids and colloids
- Mainly deals with biomolecules metabolism
- Give an idea about hormones.
- To improve knowledge about chromatography and colorimetry.

UNIT-I

Buffers-definition. Determination of P^H -Henderson Hassel balch equation, dialysis, surface tension & viscosity. Principles, instrumentation and applications of colorimetry, Principles, instrumentation and applications of chromatography (Paper &TLC).

UNIT-II

Carbohydrate metabolism-EMP, glycogenesis, glycogenolysis, TCA, HMP, Lipid metabolism- Types of oxidation (definition), β- oxidation biosynthesis of steroids -cholesterol biosynthesis.

UNIT-III

Protein metabolism-transamination, oxidative & non oxidative deamination, decarboxylation, Urea cycle, Inter relationship of lipids, carbohydrates & protein metabolism.

UNIT-IV

Bioenergetics – laws of thermo dynamics, redox potential, respiratory chain (theories & mechanisms) high energy compounds – currency of cells ATP molecules structure and functions.

UNIT-V

Hormones – Definition, classification of hormones, second messengers - cAMP biological functions & disorders of pancreatic hormones (Insulin, Glucagon), thyroid hormones (thyroxin and tri iodotyronin).

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	This course presents the chemical reactions or metabolic functions in the living system and their regulations.	07
CO2:	To know the synthesis of proteins, lipids, nucleic acids,andcarbohydrates and their role in metabolic pathways.	05
CO3:	On successful completion of the subject the student should have advanced knowledge in the field of lifescience.	01

TEXT BOOKS

1. Practical Biochemistry by Keith Wilson and john Walker, Cambridge University Press. Murray RK, DkGranner, PA Mayes and VM Rodwell (1999). Harper's Biochemistry. 24thEdition, Large Medical Publications

2. Satyanarayana U (2005). Essentials of Biochemistry,Books and Allied (p) Ltd., Kolkata.

REFERENCES:

1. Jain JL (2003).fundamentals of biochemistry,S.chand&companyLtd.,New Delhi.

2. Deb A.C., (2004), concepts of biochemistry, (Theory and Practical), Books and Allied (p) Ltd., Kolkata.

3. Lehninger A.L., 2002, Biochemistry, CBS Pub.

SEMESTER - II

Hrs	**5**
Cred.	**4**
Code	**18U2MBP02**
Marks	**100**

FIRST YEAR PRACTICAL-I

Max. Marks 100

Practical Exam. Hours: 7 hours/day (End of second semester)

MICROBIAL PHYSIOLOGY

1. Culture characteristics of Microorganisms- colony morphology, shape, margin.

2. Microscopic examinations of

   a. Algae - Diatoms, Chlamydomonas, Volvox . -Wet mount

   b. Cyanobacteria:*Oscillatoria*, *Nostoc*, *Anabaena*.-Wet mount

   c. Fungi- *Mucor spp., Aspergillus spp., Penicilliumspp, Alternariaspp& Yeast.* LPCB

   d. Parasites- *Entamoeba spp., Giardia spp., Plasmodium,Taenia, Ascaris*.

3. Motility determination - Hanging drop method, semisolid agar.

4. Measurement of microbial growth- turbidity method

5. Demonstration of pigment production on Nutrient agar medium (*Staphylococcus aureus, Pseudomonas aeruginosa&Serratia*)

7. Micrometry and Observation of budding cells of yeast (Demonstration).

8. Anaerobic cultivation- McIntosh and Filde's anaerobic jar (Demonstration).

Text Book

1. Alcamo, Fundamentals of Microbiology, Blackwell Publications

REFERENCES

1. Aneja KR (2005). Experiments in Microbiology, Plant pathology and Biotechnology. 4th Edition, New Age International Publishers, Chennai. Price Rs.225/-.
2. Dubey RC and Maheswari DK (2004). Practical Microbiology 1st Edition, S.Chand& Company Ltd., New Delhi.
3. Kannan N (2003). Handbook of Laboratory Culture Media, Reagents, Stains and Buffers. Panima Publishing Corporation, New Delhi. Price Rs.395/-

Hrs	6
Cred.	4
Code	18U3MB03
Marks	100

SEMESTER - III

CORE-III-IMMUNOBIOLOGY

Objectives:

Immunology explains

- The working of immune system and immune molecules,
- Its response to antigenic substances,
- Mechanisms of immune response, autoimmune disorders,
- Hypersensitivity reactions of immune system,
- Immuno diagnosis, cancer immunology and transplantation immunology.

UNIT I- History of immunology, Immunohaematology – Blood groups – Blood transfusion, Rh- Erythroblastosisfaetalis – immunity – types of immunity – innate and acquired immunity

UNIT II-Structure, Composition and Function of cells and organs involved in immune system, Antigen -Properties of antigen, immunogen, Adjuvant, Hapten. Antibody- structure and types. Complement classical and alternative pathways. MHC complex – structures, functions.

UNIT III- Antigen - Antibody interaction -Agglutination - Precipitation - Flocculation - ODD - RIA- 1FT – CFT, ELISA - Immunoelectrophoresis.

UNIT IV- Auto immune diseases - Types and mechanisms. Hypersensitivity reactions - types, Antibody mediated (Type- I, Type II, Type III) and Cell mediated (Type- IV).

UNIT V- Transplantation Immunology - HLA Tissue Typing - mechanism of acceptance and rejection. Vaccines - Types, Immunization schedule.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To inculcate knowledge in human immune response towards micro organisms.	02
CO2:	On successful completion of the subject the student should have understood: Immunity, Antigen, Antibody, Cells of immune system and their function and regulations.	01
CO3:	After completing the course the student should be able to recognize the scientific literatures in the fild of immune biology.	04
CO4:	Had knowledge on basic principles for defense and fight against infections. Present treatment that can strengthen the immunity against infectious agents (Eg Vaccination)	09

TEXTBOOKS

1. Kuby, Immunology – Richard A Goldsby, Thomas J. Knidf. Barbara A. Osborne (2000) 4th Edition

REFERENCES

1. Tizard K (1983) Immunology- An Introduction. Sauders College Publishing, Philadelphia.
2. Roitt. I.M.(1988). Essential Immunology. Black Well Scientific Publishers.
3. Lefell, Donnenberg, A: and Rose, H.(1997). Hand book of Lunar Immunology BOCA Raton Fla;CRC Press
4. Abbas, A.K. Lichtman, A.M. and Pober, J.S.(1992). Cellular and Molecular Immunology 3rd Edition Philadelphia: M.B. Sounders.

SEMESTER – III

Hrs	**6**
Cred.	**4**
Code	**18U3STA07**
Marks	**100**

ALLIED PAPER III – BIOSTATISTICS

Objectives:

Biostatistics paper deals with

- Data collection methods and presentation,
- Measures and statistical calculations as central tendency, dispersion,
- Testing of hypothesis

Unit – I: Biostatistics – definition – types of data – Primary and Secondary data – Methods of Collection of data – Sources of data in life science – Limitation and uses of statistics.

Unit – II: Classification and Tabulation of data – Diagrammatic and Graphic representation of data.

Unit – III: Measures of Central Tendency: Mean, Median, Mode, Geometric Mean and Harmonic Mean – Merits and Demerits. Measures of dispersion: Range, Standard deviation, Mean deviation, Quartile deviation, – Merits and Demerits, Coefficient of variations.

Unit – IV: Correlation: Types and Methods of Correlation, Rank – Correlation. Regression: Simple regression equation.

Unit – V: Sampling distribution - Standard error – Test of Hypothesis: Simple Hypothesis, Null hypothesis – Test of Significance: Large sample tests with regard to Mean, Differences of Means - Small Sample Test with regard to Mean, Difference of Means– Chi – square test.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Select from, use and interpret results of, descriptive statistical methods effectively	04
CO2:	Demonstrate an understanding of the central concepts of modern statistical theory and their probabilistic foundation and the principal methods of statistical inference and design	03
CO4:	Communicate the results of statistical analyses accurately and effectively	05

Text book:

Gurumani. N (2005). An introduction to Biostatistics. 2nd Revised Edition, MJP Publishers, Chennai. Price Rs.160/-

Reference Books :

1. P.S.S. Sundar Rao, J.Richard (2012). An introduction to Biostatistics and Research methodology. Fifth Edition, Prentice Hall of India Learnin Pvt Ltd, New Delhi. Price Rs.275/-

2. Daniel WW,(1987). Biostatistics, John Wiley and Sons, New York.

3. Dr.Pranab Kumar Banarjee. An Introduction to Biostatistics (2011), S.Chand and Company Ltd, Ram Nagar, New Delhi. Price Rs.175/-

4. A. Indrayan, L. Sathyanarayana (2006). Biostatistics for Medical, Nursing and Pharmacy students. Prentice Hall of India Pvt Ltd, New Delhi. Note: 1) This paper has to taught teacher and exam papers to be valued by only Statistics Board. 2) While setting the question paper, 50% theory and 50% problems to be considered.

SEMESTER- III

Hrs	**6**
Cred.	**4**
Code	**18U3MBP03**
Marks	**100**

SECOND YEAR PRACTICAL-III

Max. Marks 100

Practical Exam Hours: 7 hours/day (End of third semester)

IMMUNOBIOLOGY LAB

Objectives:

- To diagnose infectious diseases
- To isolate DNA from plasmid and Bacteria

1. Blood collection and plasma/serum separation.
2. Blood grouping - Rh typing -cross matching.
3. Examinations of Blood Cells
   a. Total Count
   b. Differential Count
4. Agglutination reaction
   a. Widal test-slide and tube test b. ASO test
   c. RA test
   d. CRP test
   e. Pregnancy test (Slide and Card test).
5. Precipitation reaction

a. Ouchterlony double immunodiffusion test.

b. Counter immunoelectrophoresis.

6. Flocculation.-RPR TEST

7. HIV - Tri Dot test. Hepatitis-Hepacard (Demontration).

REFERENCES

1. Aneja KR (2005). Experiments in Microbiology, Plant pathology and Biotechnology. 4th Edition, New Age International Publishers, Chennai. Price Rs.225/-.
2. Myer's and Koshi's Manual of Diagnostic Procedures in Medical Microbiology and Immunology/Serology. Published by Department of Clinical Microbiology, CMC and Hospital, Vellore, Tamil Nadu.

SEMESTER – IV

Hrs	**5**
Cred.	**4**
Code	**18U4MB04**
Marks	**100**

CORE -IV- MICROBIAL GENETICS

Objectives of Genetics is

- The science of heredity and variation in living organisms,
- Learning about genes and their functions,
- Mutations and repair and
- Various gene transfer mechanisms with applications of genetics.

Unit-I: Genetics - Historical Introduction – Cell Cycle - Mitosis - Meiosis - Bacterial chromosome organization, structure and function of DNA, RNA & its types. Extrachromosomal DNA (Plasmid).

Unit-II: Evidence of DNA as the genetic material – Physical structure of DNA – the double helix, circular, super coil DNA. RNA as a genetic material – types of RNA. DNA replication – enzymes of replication, discontinuous replication, bidirectional replication, rolling circle replication.

Unit-III: Mutation - types of mutation - spontaneous and induced - mutagen and mutagenesis. Isolation and Detection of mutants- Carcinogenicity - Ames test. DNA repair mechanism.

Unit-IV: Transcription in prokaryotes - Translation of proteins. Organization of bacterial genes – genetic code. Regulation of gene expression – Lac operon model, tryptophan operon- attenuation control. Regulation of gene expression in eukaryotes.

Unit-V: Types of Plasmids, episomes, transposons – Genetic recombination – requirements, molecular basis, genetic analysis of recombinant in bacteria. Gene transfer mechanism - Transformation, Conjugation and Transduction (Specialized and Generalized).Transposons.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand concept of genes and Understand Process of DNA replication transcription, translation	02
CO2:	Familiar with concept of mutations and the concepts of spontaneous mutations	08
CO3:	Know the concept of basic genetics and their roles towards engineering the genetic matter using laboratory.	09

TEXT BOOK

1. David Freifelder (1999). Molecular biology, Narosa publishing House.

REFERENCES

1. Friedberg E.C., Walter GC, Sied. W (1995). DNA repair and mutagenesis. ASM press.
2. William Hayes (1985). The Genetics of Bacteria and their Viruses. Blackwell Scientific Publishers, Oxford.
3. Gardner, E.J. Simmons, M.J and D.P Snustard (1991). Principles of Genetics. 8th Edition John Wiley & Sons, New York.
4. Robert H. Tamarin (2004). Principles of Genetics – 7th Edition, Tata McGraw Hill Publication, New Delhi.
5. Gerald Karp (2002), Cell and Molecular Biology. 3rd Edition. John Wiley & Sons, Inc.
6. Peter J Russell (2002). Genetics – Benjamin Cummings.
7. Peter Snustard D., Michael J. Simmons (2003). Principles of Genetics, Third Edition, John Wiley & Sons. Inc.
8. Ahluwalia, K.B (1996). Genetics. New Age International Pvt., Ltd

Hrs	4
Cred.	4
Code	18U4CSA04
Marks	100

SEMESTER – IV

ALLIED PAPER IV - COMPUTER APPLICATION IN BIOLOGY

Objectives:

- To know about computer origin and its different parts
- It deals with programming and networking
- Give an idea about OS
- To understand its importance

UNIT I

Introduction of computers: Introduction- Types of Computers-Characteristics of Computers. Generations of Computers-Classification of Computers-Programming Languages: Machine Language-Assembly Language - High-level languages. Input Devices – keyboard-Mouse-Types of mice – Connections-Mouse pad-Trackball-Joystick-Output devices - Dot Matrix Printer- Inkjet -Laser Printer -LCD & LED Printers-Line Printer Auxiliary Storage Devices: Hard Disk – CD – DVD - Primary memory.

UNIT II

Overview of C: History of C – Importance of C-Basic structure of C programs.Constants, Variables and data types: Character set - Keywords and identifiers-Constants-Variables-Declaration of storage classes. Operators and expression-Evaluation of expression - Type conversions in expressions-Operator precedence and associatively-Mathematical functions. Managing input and output operations: Reading and Writing a character-Formatted input and output.

UNIT-III

Deision making and branching: Simple IF, IF-ELSE, Nesting of IF-ELSE, ELSE-IF ladder, Switch statements-GOTO statements. Decision making and looping: WHILE statement-DO statement-FOR statement – jumps in loop.Arrays: Definiton& Declaration- One dimensional – Two dimensional-Multidimensional arrays-Dynamic arrays.

UNIT-IV

Character arrays and strings: Introduction – Declaring and initializing string variables – User Defined functions: Definition of functions-Return values and their types-Function calls-Function declaration-All category of functions-Nesting of functions Structures and Unions: Introduction - Accessing structure members - Structure initialization - Arrays of structures - Arrays within structures – Unions.

UNIT-V

Scope of bio informatics - internet basic - biological data analysis and applications sequences of data bases - application of bio informatics.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Demonstrate the overview of programming in C language	05
CO2:	To acquire knowledge on Deision making and branching and looping of arrays	03
CO4:	To know the computational tools used in biological industry	04

TEXT BOOK:

1. Programming in ANSI C, E.Balagurusamy Tata McGraw Hall, New Delhi, 4th edition. (Unit-II, III, IV).

REFERENCES:

1. Fundamentals of Computers science and Communication Engineering. **Alexis Leon**&**Mathews Leon**, Vikas Publishing House Pvt.Ltd, New Delhi (UNIT- I)
2. Programming in ANSI, E.Balagurusamy Tata McGraw Hall, New Delhi, 4th edition. (Unit-II, III, IV).
3. Introduction to Bioinformatics by V.Kothekar, 2004 Dhruv publications, Delhi-95. (UNIT – V)

SEMESTER - IV

Hrs	**5**
Cred.	**4**
Code	**18U4MBP04**
Marks	**100**

SECOND YEAR PRACTICAL-IV

Max. Marks 100

Practical Exam. Hours: 7 hours/day (End of four semesters)

MICROBIAL GENETICS

Objectives:

- To isolate DNA from plasmid and Bacteria

1. Observation of mitosis from onion root tip.
2. Isolation of Genomic DNA from Bacteria.
3. Estimation of DNA (DPA method).
4. Separation of DNA by Agarose gel Electrophoresis.
5. Isolation of Auxotrophic mutant by replica plate method.
6. Isolation of drug resistant mutants by gradient plate method.
7. Isolation of phage from Sewage
8. Separation of proteins by polyacrylamide gel Electrophoresis

REFERENCES

1. Aneja KR (2005). Experiments in Microbiology, Plant pathology and Biotechnology. 4th Edition, New Age International Publishers, Chennai. Price Rs.225/-.

2. Myer's and Koshi's Manual of Diagnostic Procedures in Medical Microbiology and Immunology/Serology. Published by Department of Clinical Microbiology, CMC and Hospital, Vellore, Tamil Nadu.

SEMESTER - IV

Hrs	3
Cred.	3
Code	18U4CSAP04
Marks	100

ALLIED PRACTICAL – II

LAB IN COMPUTER APPLICATION IN BIOLOGY

Programming List:

1. Finding Mean, Standard deviation and Mean deviation for a given problems
2. Calculating the correlation coefficients.
3. Finding Regression coefficients and Regression lines.
4. student's' T test (statistics to biological problems/data)
5. chi-square test
6. Write a program to find the factorial of a given number & to count the positive, negative & zero numbers.
7. Write a program to find the occurrences of each character in the string & to concatenate two strings without using string library function

SEMESTER - V

Hrs	**5**
Cred.	**4**
Code	**18U5MB05**
Marks	**100**

CORE –V- MEDICAL BACTERIOLOGY

Objectives:

Medical Microbiology deals with

- The study of microorganisms of medical importance and are capable of causing diseases in human beings.
- Microbial pathogenesis and epidemiology
- The study of disease pathology and immunology.
- The Medical diagnostic laboratory, microbiologists are often medical technologists.

UNIT I - Collection and transport of clinical specimens for microbiological examination – Virulence factors of bacteria causing human infections – Normal flora of human body.

UNIT II - Morphology, classification, culture characters, pathogenicity, laboratory diagnosis, control and treatment of following organisms *Staphylococcus aureus, Streptococcus pyogenes, S.pneumoniae, Neisseria gonorrhoeae, N.meningitis.*

UNIT III- Morphology, classification, culture characters, pathogenicity, laboratory diagnosis, control and treatment of following organisms *Mycobacterium tuberculosis, Mycobacterium leprae, Corynebacteriumdiphtheriae, Clostridium tetani, Bacillus anthracis,* Actinomycetes.

UNIT IV - Morphology, classification, culture characters, pathogenicity, laboratory diagnosis, control and treatment of following organisms *Salmonella typhi, Shigelladysentriae, Vibrio cholerae, Escherichia coli, Klebsiellapneumoniae, proteus mirabilis, Pseudomonas aeruginosa, Yersinia pestis.*

UNIT V- Morphology, classification, culture characters, pathogenicity, laboratory diagnosis, control and treatment of following organisms*Treponemapallidum, Leptospirainterrogans, Mycoplasma pneumoniae, Chlamydia trachomatis.*

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Learn the methods of collection, transport and processing of clinical specimens.	03
CO2:	Know the morphological, biochemical, cultural properties of medically important bacteria.	01
CO3:	Comprehend the diagnosis of bacterial infections and prevention methods.	09

TEXT BOOKS

1. Ananthanarayan R & Jayaram Paniker CK (2000). Text book of Microbiology. 6th Edition, Orient Longman Limited, Chennai. Price Rs.310/-.

REFERENCES

1. Chakraborty P (2003). A Text book of Microbiology. 2nd Edition, Published by New Central Book Agency (P) Ltd., Kolkata. Price Rs.485/-.

2. SatishGupte (2002). The short textbook of Medical Microbiology. 8th Edition, Jaypee Brothers, Medical Publishers (P) Ltd., New Delhi. Price Rs.250/-

SEMESTER - V

Hrs	**5**
Cred.	**4**
Code	**18U5MB06**
Marks	**100**

CORE–VI- MEDICAL VIROLOGY

Objectives:

Virology sticks itself to

- The specification of virus & its structure, characteristics & cultivation of viruses,
- Reproduction types observed,
- Bacteriophages and their life cycle
- Animal and plant viral infections and their characteristics.

UNIT I - General properties – classification – cultivation – Isolation and Identification of viruses (plant and animal) – Serodiagnosis and Molecular diagnosis of viral infections.

UNIT II - Pox viruses – *Variola, vaccinia.* Herpes viruses – *Herpes simplex, Varicella zoster, Cytomegalovirus, Epstein Barr virus. Adeno viruses – Hepatitis viruses – Papova viruses – Papilloma, Polyoma - Parvo virus.*

UNIT III - *Picorna viruses – Polio, Rhino virus. Orthomyxo virus – Influenza. Paramyxo viruses – Para influenza, mumps, measles. Rhabdo virus - Reo virus -*

Rota virus. Alpha viruses . Flavi viruses, Dengue virus, Rubella - Retro viruses – HIV.

UNIT IV- Bacterial Viruses: Discovery, Bacteriophage structure and organization; identification, nomenclature, virulent and temperature phages; Lytic cycle; one step growth curve; transcription; DNA replication; eclipse phase; phage replication; burst size; lysogenic cycle, transduction.

UNIT V- Plant Viruses: Classification and nomenclature; effects of viruses on plants; common virus diseases of plants; paddy, cotton, tomato and sugarcane; life cycle; type species of plant viruses like TMV, transmission of plant viruses through vectors (insects, nematodes, fungi, seed, pollen).

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To inculcate knowledge in relationship between human viral disease, its pathogenicity and prophylaxis method. To gain the knowledge about plant viral disease and its Pathogenicity	02
CO2:	On successful completion of the subject the student should have understood the different type of human viruses and their structure, interaction to the host, viral replication in to the host and pathogenicity.	01
CO3:	To learned about vaccines and anti-viral drugs.	06

TEXTBOOKS

1. Ananthanarayan R & Jayaram Paniker CK (2000). Text book of Microbiology. 6th Edition, Orient Longman Limited, Chennai.
2. Chakraborty P (2003). A Text book of Microbiology. 2nd Edition, Published by New Central Book Agency (P) Ltd., Kolkata. Price Rs.485/-.
3. Hugo WB and AD Russell (1998). Pharmaceutical Microbiology, Sixth edition, Blackwell Scientific Company Ltd.

REFERENCES

1. Dimmok NJ, Prmrose SB (1994). Introduction to Modern Virology, 4th Edition, Blackwell Scientific Company Publications.

2. Patric R Murray (1990). Medical Microbiology. Mosby Publications.
3. Baron EJ, Peterson LR and Finegold SM (1994). Bailey and Scott's diagnostic Microbiology. 9th Edition, Mosby Publications.
4. Luria, SE, Darnell JE, Baltimore D and Compare A (1978). General Virology, 3rd Edition, John Wiley and Sons, New York.
5. Edward, K. Wanger & Martinez, J. heweltt (2004). Basic virology. Blackwell publishing.

SEMESTER – V

Hrs	**5**
Cred.	**4**
Code	**18U5MB07**
Marks	**100**

Core- VII- MEDICAL PARASITOLOGY

Objectives:

Mainly deals with

- Parasites classification
- To know parasite diagnosis
- Individual parasite study

UNIT I - Introduction – classification - Laboratory diagnosis of parasitic infections - direct and concentration methods, Blood smear examination.

UNIT II- Morphology, classification, culture characters, pathogenicity, laboratory diagnosis, control and treatment of following organisms*Entamoebahistolytica, Giardia intestinalis, TrichomonasvaginalisBalantidium coli.*

UNITIII Morphology, classification, culture characters, pathogenicity, laboratory diagnosis, control and treatment of following organisms*Haemoflagellates – Leishmaniadonovani, Trypanosomabrucei, T. cruci, Malarial parasite – Plasmodium.*

UNIT IV - Morphology, classification, culture characters, pathogenicity, laboratory diagnosis, control and treatment of following organisms*Taeniasolium, TaeniasaginataParagonimus, westermani, Fasciola hepatica, Fasciolopsisbuski.*

UNIT V- Morphology, classification, culture characters, pathogenicity, laboratory diagnosis, control and treatment of following organisms *Ancylostomaduodenale, Ascarislumbricoides, Wuchreriabancrofti. Enterobiasvermicularis*

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Understand the nature and basic concepts of Medical parasitology	01
CO2:	Demonstrate detailed knowledge and understanding of the biology, life cycles, pathogenesis, diagnosis of parasitic infections in humans and their relevance for human health and strategies for control.	02
CO3:	Demonstrate specialized skills acquired through taking Modules on: advanced diagnostic, immunological, molecular, genetic, chemotherapeutic, ecological and/or control aspects of the subject.	05

TEXT BOOKS

1. Parija S.C. (2006) Text book of Medical Parasitology.
2. Chakraborty P (2003). A Text book of Microbiology. 2nd Edition, Published by New Central Book Agency (P) Ltd., Kolkata. Price Rs.485/-.

REFERENCE

1. Karyakarte RP &Damle AS (2005). Medical Parasitology. Books & Allied (P) Ltd., Kolkatta.

SEMESTER – V

Hrs	**4**
Cred.	**3**
Code	**18U5MBE01**
Marks	**100**

ELECTIVE –II- MEIDCAL MYCOLOGY

Objectives:

Medical Mycology deals with

- The study of fungi of medical importance and are capable of causing diseases in human beings.
- Fungal pathogenesis and epidemiology
- The study of disease pathology and immunology.
- The medical diagnostic laboratory, microbiologists are often medical technologists.

UNIT I- Introduction to Medical Mycology – Morphological features of fungi- Classification of medically important fungi

UNIT II- Morphology, classification, culture characters, pathogenicity, laboratory diagnosis, control and treatment of following organisms. Superficial mycosis – Pityriasisversicolor, TineanigraCutaneous mycosis – Dermatophytosis

UNIT III- Morphology, classification, culture characters, pathogenicity, laboratory diagnosis, control and treatment of following organisms Subcutaneous mycosis – Sporotrichosis, Mycetoma. Chromoblastomycosis

UNIT IV- Morphology, classification, culture characters, pathogenicity, laboratory diagnosis, control and treatment of following organisms Systemic mycosis – Histoplasmosis. Opportunistic mycosis – Candidosis, Cryptococcosis – Aspergillosis

UNIT V- Antifungal agents- Antifungal antibiotics and synthetic antifungal agents – Myco toxins

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To describe the basic aspects of fungal classification and morphology, diagnosis, and disease.	01
CO3:	The Programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in medical mycology.	09
CO4:	Use appropriate skills and hygienic and safe working practices at all times	03

TEXTBOOKS:

1. JagadishChander (1996). A text book of Medical Mycology. Interprint, New Delhi.

REFERENCES:

1. Mehrotra RS and Aneja KR (1990). An introduction to Mycology. New Age International Publishers.
2. Baron EJ, Peterson LR and Finegold SM (1994) Bailey and Schott diagnostic microbiology, 9th edition, Mosby publications.

SEMESTER – V

Hrs	**4**
Cred.	**3**
Code	**18U5MBE02**
Marks	**100**

Elective II-MICROBIAL BIOTECHNOLOGY

Objectives:

- To study the microbial immobilized enzyme.
- To know about the application of microbes in therapeutic, food and agriculture through biotechnology.

UNIT I - Biotechnology – definition and history – Enzyme biotechnology – enzyme production from microbes – applications – enzyme immobilization – product produced.

UNIT II - Microbial algal technology – cultivation methods of *Spirulina* – biotechnological potentials of microalgae – Food, Feed and Fuel production. Pharmaceutically valuable compounds of microalgae.

UNIT III - Production of biotechnological products – SCP (Yeast, Mushroom), Biofertilizer - VAM, Biopesticides – *Bacillus thuringiensis* Biopolymers – *Xanthomonascampestris.*

UNIT IV - Microbial synthesis of commercial production – pharmaceutical products – Insulin – interferon – Growth harmones.

UNIT V - Molecular Diagnostics – Immunological diagnostic procedures – Monoclonal antibodies – DNA Diagnostic Systems – Diagnosis of Malaria – PCR – OLA., Genetic diseases,Sickle cell anemia.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Aware of screening of bacteria, Understand SCP production process	06
CO3:	Implement techniques of pharmaceutical product production	05
CO4:	Know the concept various Immunological and Molecular diagnostic methods	01

TEXTBOOKS:

1. Satyanarayana U (2005). Biotechnology. 1st Edition, Books and Allied (P) Ltd., Kolkata.
2. DubeyRC.,Textbook of biotechnology .S.Chand& Co. Ltd.

REFERENCES

1. Jogdand SN (2005). Gene Biotechnology. Himalaya Publishing House, Mumbai.
2. Singh BD (2005). Biotechnology. 2nd revised and enlarged Edition, Kalyani Publishers, Chennai.
3. Kumarasan V (2001). Biotechnology. Published by Saras Publication, Nagercoil, Tamil Nadu. Price Rs.105/-.
4. Bernad R Glick and Jack J Pasternak (1998). Molecular Biotechnology. Principles and Applications of Recombinant DNA. 2nd Edition. ASM Press, Washington, D.C.

SEMESTER - V

Hrs	**2**
Cred.	**2**
Code	**18U5MBS01**
Marks	**100**

SBEC-V-CLINICAL MICROBIOLOGY

Objectives:

- To study the various diseases with the help of microbiological and molecular diagnosis.
- To impart through the knowledge about prophylactic methods of diseases.

Unit -I Introduction to Diagnostic microbiology: Role of microbiology laboratory, Basic procedures of Microbiology. Quality Control. Specimen collection handling & processing.

Unit -II Systematic grouping& characteristics of Pathogenic bacteria. Identification of infectious agents &disease.Antimicroial susceptibility test.

Unit –III Introduction to fungi. Specimen collection processing & diagnosis of Mycotic infections.

Unit –IV Collection and Handling of fecal specimens. Parasitological examination of Stool & Laboratory identification of human parasites.

Unit -V Principle & Procedures of common serological /immunological tests in the laboratory.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To inculcate knowledge in basic techniques implemented to the analysis of human samples	02
CO2:	Knowledge, understanding and be able to evaluate the clinical significance of microorganisms commonly recovered in medical microbiology laboratories.	06
CO3:	The ability to apply this knowledge in evaluating a range of techniques used in microbiology laboratories to isolate, characterise, and identify medically important microorganisms;	08

TEXTBOOK

1. Myer RM and Koshi G1982, Diagnostic procedures in medical microbiology and Immunology/ Serology, Microbiology laboratories, Christian medical college and hospital,Vellore.

REFERENCES

1. Lippincott Williams and Wilkins. Philadelphia, Baltimore 2006. Koneman'sColor Atlas

and Textbook of diagnostic microbiology.

2. Monica Cheesbrough 2000. Distric laboratory practice in tropical countries, Part II,

Cambridge university Press, Cambridge, UK.

2. Yi-Wei Tang, Charles W Stratton. Advanced techniques in Diagnostic Microbiology, US

SEMESTER - V

Hrs	**6**
Cred.	**4**
Code	**18U6MBP05**
Marks	**100**

CORE PRACTICAL-V

Medical Microbiology

Max. Marks 100

Practical Exam. Hours: 7 hours/day (End of fifth semester)

Objectives:

- To identify the medically important pathogen.
- To know the knowledge about various diagnosis method.

1. Staining techniques – Gram's, Ziehl-Neelsen, Capsular, Spore and Granular staining.
2. Biochemical identification of bacterial pathogens.
   Following tests to be performed:- TSI, Indole, MR, VP, Citrate, Urease, Catalase & Oxidase test for

   a. *Staphylococcus aureus* *iv) Salmonella typhi*
   b. *Escherichia coli* *v) Proteus vulgaris*

c. *Klebsiellapneumoniae* vi) *Psedomonasaeruginosa*

3. Normal saline/Lugol's iodine preparation for parasitic Ova/cyst examination.
4. Stool examination by Zinc-sulphate floatation method.
5. Blood smear examination for malarial parasite (*Plasmodium vivax and P. malariae*)
6. Wet mount examination of *Trichomonasvaginalis*.
7. Examination of fungi by KOH and Lactophenol cotton blue stain – Dermatophytes and other fungi.
8. Examination of *Candida albicans* by Gram's stain, Germ tube and Sugar assimilation test.
9. Examination of *Cryptococcus neoformans* by Negative staining.
10. AST – Kirby-bauer disc diffusion method.
11. Egg inoculation technique – All routes.

REFERENCES

1. Aneja KR (2005). Experiments in Microbiology, Plant pathology and Biotechnology. 4th Edition, New Age International Publishers, Chennai. Price Rs.225/-.
2. Myer's and Koshi's Manual of Diagnostic Procedures in Medical Microbiology and Immunology/Serology. Published by Department of Clinical Microbiology, CMC and Hospital, Vellore, Tamil Nadu.
3. James G Cappuccino & Natalie Sherman (20,04). Microbiology: A Laboratory Manual. 6th Edition, Published by Pearson Education.
4. Dubey RC and Maheswari DK (2004). Practical Microbiology 1st Edition, S.Chand& Company Ltd., New Delhi.
5. Kannan N (2003). Handbook of Laboratory Culture Media, Reagents, Stains and Buffers. Panima Publishing Corporation, New Delhi. Price Rs.395/-.

SEMESTER – VI

Hrs	**6**
Cred.	**4**
Code	**18U6MB08**
Marks	**100**

CORE–VIII- SOIL AND AGRICULTURAL MICROBIOLOGY

Objectives:

Soil & Agricultural Microbiology tells about

- The distribution of the various major groups of organisms found in the soil environment,
- Positive and negative interactions among these group of organisms,
- Agricultural importance of microorganisms and their role,
- Microbes benefiting and affecting agricultural practices.

UNIT-I: Introduction to Soil microbiology - Properties of soil (Structure, texture, formation). Types and significance of soil microbes – Bacteria, Fungi, Actinomycetes, Algae, Protozoa, Nematode and Viruses – Factors affecting microbial population.

UNIT-II: Biogeochemical cycle – Carbon, Phosphorus, Nitrogen – Biological Nitrogen fixation – Nitrogen fixers Root nodule formation – Nitrogenase, Hydrogenase.

UNIT-III: Microbial interaction between microbes – Neutralism, Commensalism, Synergism, Mutualism, Amensalism, Symbiosis, Competition, Parasitism and Predation. Interaction of Microbes with plants – Rhizosphere and Mycorrhizae – Interaction of microbes – insects and rumen.

UNIT IV - Plant pathology (symptoms, disease cycle and control measures) – Bacterial diseases – Blight of rice, Citrus canker – Fungal disease – Red rot of sugarcane, Wilt of cotton, Tikka leaf spot of groundnut.

UNIT V - Biofertilizer – Rhizobium and Azotobacter, Cyanobacteria, Azolla – Mass multiplication and crop response. Biopesticide – Bacterial, fungal and viral.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Appreciate the diversity of microorganism and microbial communities inhabiting a multitude of habitats and occupying a wide range of ecological habitats.	08
CO2:	Learn the occurrence, abundance and distribution of microorganism in the environment and their role in the environment and also learn different methods for their detection and characterization	05
CO3:	Understand various plant microbes interactions especially rhizosphere, phyllosphere and mycorrhizae and their applications especially the biofertilizers and their production techniques.	06

TEXTBOOKS

1. Subba Rao NS (2004). Soil Microbiology. 4th Edition, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi. Price Rs.295/-.
2. Rangaswami G and Mahadevan A (2002). Diseases of crop plants in India. 4th Edition, Printice-Hall of India Pvt. Ltd., New Delhi.

REFERENCES

1. Mishra RR (2004). Soil Microbiology. 1st Edition, CBS Publishers and Distributors, New Delhi. Price Rs.175/-.
2. Robert, L Tate, (1995). Soil Microbiology. 1st Edition, John Wiley & Sons, Inc. New York.

SEMESTER - VI

Hrs	**5**
Cred.	**4**
Code	**18U6MB09**
Marks	**100**

CORE–IX- ENVIRONMENTAL AND PHARMACEUTICAL MICROBIOLOGY

Objectives:

Environmental Microbiology is

- The study of the function and diversity of microbes in their natural environments. Microbially-mediated nutrient cycling, geomicrobiology, environmental aspects of microbial interactions,
- Biodegradation, waste water treatment, solid waste disposal, bioleaching, bioremediation etc.
- Characterisation of key bacterial habitats such as the rhizosphere and phyllosphere, soil and groundwater ecosystems, open oceans or extreme environments (extremophiles).

UNIT I - Ecosystems, types – Dynamics of ecosystems – Un-culturable and culturable bacteria – Conventional and molecular methods of studying microbial diversity.

UNIT II - Microbiology of air – Aero microbial pathways – Enumeration of bacteria from air – Air sampling devices – Air sanitation- Air borne diseases.

UNIT III - Microbiology of water – Potability of water quality – Indicator organisms – water purification – waterborne diseases and their control measures.

UNIT IV - Microbiology of sewage – chemical and biochemical characteristics of sewage – BOD & COD – Sewage treatment – Physical, chemical and biological (trickling filter, activated sludge and oxidation pond) treatment – Disposable of wastes. Positive and negative roles of microbes in environment – Introduction to biodegradation – xenobiotics.

UNIT V- Antibiotics and synthetic antimicrobial agents (Aminoglycosides, b lactams)- Antifungal antibiotics, antitumor substances (Sulphonamides and Quinolinone)- microbial fermentations (streptokinase, streptodornase).Rational drug design-Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP) in pharmaceutical industry.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	The student should have understood the Management of the Environment	01
CO2:	The student should have understood Ecosystem, energy flow and Uses and values of Biodiversity.	03
CO4:	To make the student to understood Ecology and Conservation of the Environment and Concepts of GMP and GLP regulations	07

TEXTBOOKS

1. Atlas, RN and Bartha R (1992). Microbial Ecology: Fundamentals and applications. 3rd Edition, Redwood city, Benjamin/Cummings. Improvement – Development of inoculum for various fermentation processes.

REFERENCES

1. Vijaya Ramesh K (2004). Environmental Microbiology. 1st Edition, MJP Publishers (A unit of Tamil Nadu Book house), Chennai. Price Rs.160/-.
2. Joseph C Daniel (1999). Environment Aspects of Microbiology. 1st Edition, Bright sun Publications, Chennai.
3. Mithell R (1974). Introduction to Environmental Microbiology. Prantice Hall. Inc., Englewood Cliffs, New Jersey.

SEMESTER – VI

Hrs	**5**
Cred.	**4**
Code	**18U6MB10**
Marks	**100**

CORE X -FOOD, DAIRY & POULTRY MICROBIOLOGY

Objectives:

Food & Dairy Microbiology explains about

- food borne pathogens,
- fermentation,
- food quality & safety,
- food processing & packaging, Food laws, Food technology,
- product development,
- What microbes are their characteristic feature & role in food spoilage.

Poultry Microbiology deals with

- Principles of biosecurity
- Common bacterial, viral, fungal&protozoan disease-diagnosis, vaccination, prevention and treatment

UNIT I - Food as a substrate for microbes – Microbes involved in food microbiology – Mould, Yeast, Bacteria – Factors affecting the growth of Microorganisms in food.

UNIT II - Principles of food preservation – Asepsis – Removal of microorganisms, anaerobic conditions – high and low temperatures – drying – radiation – chemical preservatives – food

additives.

UNIT III - Food spoilage – General principles – underlying food spoilage and contamination – Cereals, vegetables, fruits, and poultry products, meat, fish, sea foods.

UNIT IV - Microorganisms in milk and milk products – Yoghurt, butter milk, butter and cheese – Quality control of Milk – MBRT, SPC, Phosphatase tests. Food-borne diseases – Food poisoning – infective and toxic bacterial food borne diseases and their diagnosis – Food sanitation and its control measures.

UNIT V- Principles of biosecurity-Farm sanitation and disinfection procedures-common bacterial diseases- *Salmonella, E. coli*, Viral diseases- Newcastle, infectious bronchitis, fungal disease- Mycotoxicosis, Protozoan diseases-Coccidiosis, Ecto and endo parasitic infections. Diagnosis, vaccination, Prevention and treatment.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Enable the student to get sufficient knowledge in relationship between food and microbes, techniques used in food processing and the activities of microbes in food	01
CO2:	On successful completion of the subject the student	04

	to know about food borne, water borne and spoilage of microorganisms in food and its methods of detection.	
CO3:	To know methods of refrigeration, material handling and food preservation.	06

TEXTBOOKS

1. Frazier WC and Westhoff DC (1988). Food Microbiology, 4th Edition, McGraw Hill,
   New York
2. Adams MR Moss MO (2004). Food Microbiology, 2nd Edition, Panima Publishing House, New Delhi. Price Rs.395/-.
3. Andrew Davies and Ron Board-The Microbiology of Meat and Poultry.

REFERENCES

1. James M Jay (2003). Modern Food Microbiology. 4th Edition, CBS Publishers &
   Distributors, New Delhi. Price Rs.250/-.
2. Crawford. RD. 1993. (Ed) Poultry breeding and genetics. Elsevier.
3. Mac O North&Bell D, 1990. Commercial chicken production manual. 4th Ed. Avi.
   Publ. Co. Inc., Westport, Connecticut
4. Frank.E .Cunningham-The Microbiology of poultry meat products.

SEMESTER - VI

Hrs	**4**
Cred.	**3**
Code	**18U6MBE03**
Marks	**100**

ELECTIVE-III-BIOPROCESS TECHNOLOGY

Objectives:

- To study the basic concepts of fermentation.
- To understand the components and kinetics of Bioprocess.

UNIT I - Industrially important microorganisms – screening techniques – primary and secondary – Preservation of cultures – Strain

UNIT II - Media for industrial fermentation – Submerged and solid state fermentation – Downstream processing – Recovery and purification of intracellular and extracellular products.

UNIT III - Fermentor –Components of fermentor – Types of bioreactors – Heat production – heat transfer – Oxygen transfer – Stirring and mixing – Scale up – control of temperature – pH , Foam pressure – computer applications in fermentation technology.

UNIT IV - Microbial production of Wine, ethanol. Organic acid – Citric acid and Lactic acid.

UNIT V - Microbial production of Amino acid – Lysine, Enzyme – α-amylase, Vitamin B12.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	On successful completion of the course the students should have understood the basics of fermentation technology and learnt the concept of screening, optimization and maintenance of cultures.	06
CO2:	Bioprocess Technology teaches methods of translating discoveries of life sciences into practical and industrial products, processes and techniques that can serve the needs of society.	03
CO3:	After the study, the course contents will give several opportunities for the students to develop bio-entrepreneur for the production of microbial products by utilizing natural wastes.	09

TEXTBOOK

1. Patel AH (2005). Industrial Microbiology. Published by Macmillan India Ltd., Chennai. Price Rs.246/-.

REFERENCES

1. Agrawal AK and Pradeep Parihar (2005). Industrial Microbiology: Fundamentals and applications. 1st Edition, Published by Agrobios (India).
2. Cassida LE (1996). Industrial Microbiology. New Age International Publishers, Chennai.
3. Fermentation Technology – Stanberry

SEMESTER – VI

Hrs	**2**
Cred.	**2**
Code	**18U5MBS02**
Marks	**100**

SBEC –IV- RECOMBINANT DNA TECHNOLOGY

Objectives:

Recombinant DNA Technology deals with

- Gene therapy, and recombinant vaccines,
- GM products, GMO,
- Therapeutic and diagnostic applications.
- Plant and animal transgenesis,

UNIT I - Recombinant DNA: Historical perspective and early experiment.- Achievements of DNA technology. Cloning Vectors -Plasmids – PUC18 Ti DNA based vectors Ri plasmid vectors., Viral vector cosmid, YAC, M13 phage.

UNIT II - Enzymes in Genetic Engineering – Restriction endonucleases, ligases, Alkaline phosphatase, polynucleotide kinase, Terminal deoxynucleotidetransferase – III, Taqolymerase, Reverse transcriptase - use of linkers and adaptors.

UNIT III- Gene cloning in prokaryotes - Cloning strategies:- Construction of genomic libraries and cDNA libraries – isolation of mRNA – reverse transcription.

UNIT IV- Gene transfer in Bacteria Transformation- transfection – Electroporation and particle bombardment – micro injection – liposome mediated gene transfer- ultrasonication –screening of cloned foreign genes.

UNIT V – Cloned genes and production of chemicals – Human peptide hormone genes-insulin, somatotrophin, monoclonal antibodies and gene therapy somatic cell gene therapyand germ line gene therapy.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	To study the concept and application of monoclonal antibody technology.	01
CO2:	Provide examples on how to use microbes for the production of Pharmaceutical products.	06
CO3:	Describe the mechanism of action and the use of restriction enzymes	08

TEXTBOOK

1. DubeyRC.,Textbook of biotechnology .S.Chand& Co. Ltd.

REFERENCES

1. Mitra (2005). Genetic Engineering. Published by Macmillan India Ltd., Chennai. Price Rs.365/-
2. Jogdand SN (2005). Gene Biotechnology. Himalaya Publishing House, Mumbai.

3. Satyanarayana U (2005). Biotechnology. 1st Edition, Books and Allied (P) Ltd., Kolkata.
4. Singh BD (2005). Biotechnology. 2nd revised and enlarged Edition, Kalyani Publishers, Chennai.
5. Preeti Joshi (2002). Genetic Engineering and its applications. 1st Edition, Agrobios (India).
6. Primrose SB, RM Twyman and RW Old (2001). Principles of GeneManipulation. 6th Edition, Blackwell Science Ltd.

SEMESTER - VI

Hrs	**6**
Cred.	**4**
Code	**18U6MBP06**
Marks	**100**

THIRD YEAR PRACTICAL-VI

Max. Marks 100

Practical Exam. Hours: 7 hours/day (End of sixth semester)

Objectives:

Practical IV includes practice on

- understanding the Growth requirements,
- parameters for growth and Biochemical characteristics
- aiding identification of microorganisms

1. Examination of plant diseases – Blast disease in paddy, Blight of rice, Citrus canker, Red rot of sugarcane, Wilt of cotton and Tikka leaf spot.
2. Isolation of Nitrogen fixing bacteria from root nodules of legumes.
3. Study of morphology of cyanobacteria.

4. Enumeration of bacteria from soil.
5. Standard plate count technique (SPC)
6. MPN test.
7. Enumeration of Microbes from air by settle plate method and air sampling device.
8. Isolation of bacteriophage from sewage.
9. Paper and Thin layer chromatography.
10. Isolation of *Lactobacilli* and *Staphylococci* from curd.
11. Methylene blue reductase test.
12. Demonstration of batch fermentation using Erlenmeyer flask.

REFERENCES

1. Aneja KR (2005). Experiments in Microbiology, Plant pathology and Biotechnology. 4th Edition, New Age International Publishers, Chennai. Price Rs.225/-.
2. James G Cappuccino & Natalie Sherman (2004). Microbiology: A Laboratory Manual. 6th Edition, Published by Pearson Education.
3. Dubey RC and Maheswari DK (2004). Practical Microbiology 1st Edition, S.Chand& Company Ltd., New Delhi.
4. Kannan N (2003). Handbook of Laboratory Culture Media, Reagents, Stains and Buffers. Panima Publishing Corporation, New Delhi. Price Rs.395/-.

Hrs	2
Cred.	2
Code	18UMBN01
Marks	100

NMEC-I-GENERAL HYGIENIC AND SANITARY PRACTICES

Objectives:

Public health & Hygiene paper explains,

- Concept of health,
- Concept of disease, causes, epidemiological understanding of disease
- Health from environmental factors,
- Significance of Health education.

Unit 1- Microbial diseases and their control- distribution of microbes in nature. Common diseases caused by microorganisms, control of disease causing

microbes- physical, chemical, antibiotics and chemotherapeutic agents, factors affecting choice of antimicrobial agents.

Unit-II: Food Microbiology- Microbial flora of fresh foods, common microbial spoilage of foods, general principle of foodpreservation, indicators of product quality, indicators of food safety, microbiological safety of food, HACCP system.

Unit III: Water quality and control- water pollution, criteria for drinking water, sanitary surveys, bacteriological evidence of pollution, individual water supplies, Municipal water supply, water borne diseases and their control.

Unit-IV: Hygienic practices in industries- antibiotics, disinfectants, definition, sources, determination of antimicrobial efficiency, evaluation of disinfectants, factory and hospital hygiene, good manufacturing practices, sterilization control and sterility assurance.

Unit-V: Antimicrobial therapy and immunization- characteristics of ideal antimicrobial agents, antibiotic sensitivity test, non medical use of antibiotics, immunity, routine immunization, individual immunization.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Good hygienic and sanitary practices for production of safe food Mantra of safer food and better business	01
CO2:	Characterize microorganisms related to food borne illness and food spoilage by literature study	04
CO3:	Understand cleaning schedules and cleaning procedures.	06

TEXTBOOKS

1. Frazier, W.C, Westhoff, D.C. 1988. Food Microbiology, TATA McGraw Hill.
2. Pelczar JR, Chan ECS &Kreig NR (2006). Microbiology. 5th Edition, Tata McGraw-Hill, New Delhi.

REFERENCES

1. James M Jay. 1987. Modern Food microbiology, CBS Publishers and distributors, New Delhi.
2. Purohit SS (2005). Microbiology – Fundamentals and Applications. Reprinted & published by Student Edition, Behind Nasran Cinema, Chopasani Road, Jodhpur.

Hrs	**2**
Cred.	**2**
Code	**18UMBN02**
Marks	**100**

NMEC-II – PRINCIPLES OF BIOINSTRUMENTATION

Objectives:

- To study the principle and working procedure of different type of instruments in biological science.
- To know the knowledge about the applications of instruments.

UNIT I - Basic rules of a Microbiology Laboratory – Basic requirements Microbiology Laboratory – Basic principles, operating mechanism and applications of autoclave, hot air oven, Laminar air flow and pH meter.

UNIT II - Centrifugation methods – Basic principles of sedimentation, centrifugal force, Swedberg constant. Types of centrifuges – Differential, density gradient and ultra centrifugation.

UNIT III - Chromatography – preparation, packing of columns, adsorption and elution. Paper, Thin layer, Ion-exchange and HPLC techniques and their application.

UNIT IV- Spectrophotometric methods – Beer's Lambert's Law – Principles, operating mechanism and applications of colorimeter, Spectrophotometer and Flurescence spectroscopy.

UNIT -V Electrophoresis – Basic principles and their applications – Agarose gel electrophoresis – SDS PAGE – Blotting techniques – Southern, Western and northern blottings– Autoradiography – scintillation counter and Geiger Muller counter.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Principles and applications of bio instruments.	10
CO2:	Methods of separation techniques.	06
CO3:	Radio-labeling techniques	09

TEXTBOOKS

1. Keith Wilson and John Walker (2000). Practical Biochemistry. 5th Edition, Cambridge University Press.

REFERENCES

1. Prakash M and Arora CK. Laboratory instrumentation. Anmol Publications Pvt. Ltd.

2. Practical Biochemistry by Boyer.

Hrs	2
Cred.	2
Code	18UMBN03
Marks	100

NMEC-III-MICROBES IN DAILY LIFE

Objectives:

Microbes In Daily Life deals with

- What microbes are: their characteristic feature & role in food spoilage.
- Food safety, use of microbes as food,
- Microbial pathogenecity and identification.
- Vaccines and chemotherapeutic agents

Unit – I Food spoilage and Control measures: Fermented foods - Cheese, Sauer Kraut, Single Cell Protein.

Unit – II Clinical Microbiology: Normal flora microorganisms and their significance in health - Microbial pathogens: Pathogenic mechanism of Influenza Virus. Contagious disease - AIDS, Nosocomial infections. Diagnosis of microbial infection - Microscopic, cultural, biochemical, serological identification.

Unit – III Vaccines: Whole microbial vaccines – Live and Attenuated vaccines, Vaccination schedule.

Unit – IV Microbes in Waste recycling: Role of microorganisms in – Biodegradation of solid waste - compost, bio-leaching, bio-fuel. **Unit – VAntimicrobial chemotherapy:** Mode of action of antibiotics – Penicillin, Cephalosporin, Streptomycin, Chemical agents – Sulfonamides & Sulfa drugs. Antibiogram analysis for therapy.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Enable the student to get sufficient knowledge in relationship between food and microbes, techniques used in food processing and the activities of microbes in food.	01
CO2:	To make the student to understood the concept of Diagnostic methods	06
CO3:	The ability to critically analyse the standards of practice of medical laboratory science in clinical/research microbiology laboratories including laboratory safety standards.	09

TEXT BOOK

1. Alcamo, Fundamentals of Microbiology, Blackwell Publications

REFERENCES

1. Frazier W.C and Westhoff D.C 1989 Food Microbiology. 8th Edition. Tata McGraw Hill LTD. New Delhi.
2. Prescott L.M ; J.P Heavy and D.A. Klein 1993 Microbiology 2nd edition Wm C- Brown Publishers.
3. Atlas R.M and Bartha R. 1992. Microbial Ecology – Fundamentals and applications 3rd Edition : Red Wood City C.A Benjamin/ cummings
4. Glick, B.K. and Pasternak, J.J. 1994. Molecular Biotechnology. Principles and applications of recombinant DNA. ASM Press, Washington.

Hrs	2
Cred.	2
Code	18UMBN04
Marks	100

NMEC-IV-CORPORATE MICROBIOLOGY

Objectives:

- To introduce, update and strengthen the entrepreneurship potential among students
- To cultivate HRD as a continuous process.

Unit – I Mushroom cultivation –substrate – Composting – spawn – Cropping – Harvesting. Diseases and control, - Nutritive value, single cell proteins substrate – production – uses.

Unit – II Biofertilizers – bacterial, algal fertilizer.

Unit – III Maintenance and care of laboratory animals – mice, rabbit, guinea pig, chickens. Generation of Polyclonal and monoclonal antibodies and their applications.

Unit – IV Patents, - Patenting molecular biotechnology. Intellectual property rights – legal aspects.

Unit – V HACCP – steps of the HACCP System – explanation and application of HACCP principles – standards. Certification procedures.

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Theoretical and practical understanding on the methods of cultivation of the selected mushrooms.	06
CO2:	Knowledge on use of bacteria and algae as biofertilizer	08
CO3:	To know about microbiological quality control analysis in food science technology.	06
CO4:	Introduce students to intellectual property rights and their application.	03

TEXT BOOKS

1. Keshavtrehan 1997 biotechnology new Age international (P) Limited Publishers.
2. Subbarao N.S. 1995, soil microorganisms and plant growth. Oxford and IBH Publishing Co Pvt. Ltd.

Hrs	**2**
Cred.	**2**
Code	**18UMBN05**
Marks	**100**

NMEC-V- MUSHROOM CULTURE

Objectives:

- To facilitate self employment
- To know the nutrient value of mushroom

Unit I: Introduction-classification-tests for identification-Nutritive value of mushrooms

Unit II:characteristics of common dibble mushrooms-Paddy straw-Button-Oyster-Milky mushrooms.Life cycle of a common mushroom(*Agaricus*).

Unit III: Culture techniques –preparation of spawn-preparation of compost-spawn running-Harvesting marketing..

Unit IV: Preservation and storage of mushrooms-Diseases and pests of mushrooms.

Unit V: Delicious recipies of mushroom-Economic importance of mushrooms**.**

Co.No	Upon completion of this course , students will be able to	PSO addressed
CO1:	Enable the learner to get the nutritional and medicinal value of mushroom.	01
CO2:	Scientific data on mushroom and types of mushroom will be enlightened to the learners.	04
CO3:	Theoretical and practical understanding on the methods of cultivation of the selected mushrooms.	06

TEXTBOOKS:

1. Nita Bahl, Handbook on Mushrooms,S.Chand& Co. Ltd.

REFERENCES

1. Dubey, RC. A Textbook of biotechnology, S.Chand& Co. Ltd.

Selvamm Arts and Science College (Autonomous)

Nationally Reaccredited at 'A' Grade by NAAC

UGC Recognized 2(f) and 12(B) Institution

Affiliated to Periyar University, Salem.

Namakkal-637 003

BACHELOR OF SCIENCE PROGRAMME

Department of Physics

B.Sc., Physics Syllabus

Choice Based Credit System (CBCS)

REGULATIONS AND SYLLABUS

Effective from 2018-2019

Department of Physics

B.Sc. Physics

Vission

Integrated Development of Urban and Rural Students and empowering them for Social Transformation through Physics Education.

Mission

To awaken the young minds and discover their talents' both in theory and in practical ph6ysics, through dedication to teach commitments towards students and innovative instructional method like PPT.

To provide quality training by blending with education to the learners so as to excel in the areas of Pure and Applied Physics.

Programme Outcomes:

PO 1: Communicate effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, and Writing) skills with advanced technologies.

PO 2: Environment Concern - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self- esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

Core, Elective and Skill Based Courses:

Core	Course	Course Code
Core –I	Properties of Matter and Acoustics	18U1PH01
Core-II	Heat and Thermodynamics	18U2PH02
Core-III	Mechanics	18U3PH03
Core-IV	Optics	18U4PH04
Core-V	Electricity and Magnetism	18U5PH05
Core-VI	Basic Electronics	18U5PH06
Core-VII	Solid State Physics	18U5PH07
Core-VIII	Mathematical Physics	18U5PH08
Core-IX	Atomic Physics	18U6PH09
Core-X	Nuclear Physics	18U6PH10
Core-XI	Quantum Mechanics and Relativity	18U6PH11
Core Practical- I	Physics Practical – I	18U1PHP01
Core Practical- II	Physics Practical – II	18U2PHP02
Core Practical- III	Physics Practical – III	18U3PHP03
Core Practical- IV	Physics Practical – IV	18U4PHP04
Core Practical- V	Physics Practical – V	18U5PHP05
Core Practical- VI	Physics Practical - VI	18U6PHP06
Elective Courses	Spectroscopy	18UxPHE01
	Numerical Methods	18UxPHE02
	Electronic Communication	18UxPHE03
	Digital Electronics and Microprocessor	18UxPHE04
	Medical Physics	18UxPHE05
Skill Based Elective Courses	Electrical Appliances	18U5PHS01
	Programming in C Language	18U6PHS02

x – Corresponding Semester

Allied Physics Courses:

(Allied Subject offered to Mathematics, Chemistry, Electronics & Communication and Computer Science students in First / Second year)

Programme	Theory/Practical	Name of the Subject	Subject Code
B.Sc. Mathematics	Theory	Allied Physics-I	18UxPHA01
		Allied Physics-II	18UxPHA02
	Practical	Allied Physics Practical-I	18UxPHAP01
B.Sc. Chemistry	Theory	Allied Physics-I	18UxPHA03
		Allied Physics-II	18UxPHA04
	Practical	Allied Physics Practical-I	18UxPHAP02
B.Sc. Ele. & Com. and Computer Science	Theory	Allied Physics-I	18UxPHA05
		Allied Physics-II	18UxPHA06
	Practical	Allied Physics Practical-I	18UxPHAP03

X – Corresponding Semester.

Non Major Elective Courses:

Name of the Subject	Subject Code
Physics in Everyday Life	18U**x**PHN01
Energy Physics	18U**x**PHN02

x – Corresponding Semester

Department of Physics

B.Sc. Physics

B.Sc. Physics Programme – Hours and Credits Pattern
Effective from academic year 2018-2019

Sem	Part	Subject Code	Subject	No. of Hours per Week	Exam Hours	Credit	Marks		
							CIA	ESE	Total
I	I	18U1FTA01/ 18U1FHI01	Foundation Tamil / Hindi – I	5	3	4	25	75	100
	II	18U1FEN01	Foundation English – I	5	3	4	25	75	100
	III	18U1PH01	Core –I: Properties of Matter and Acoustics	6	3	4	25	75	100
		18U1PHP01	Core Practical – I: Physics Practical – I	6	3	4	40	60	100
		18U1MAA01	Allied Mathematics – I	6	3	4	25	75	100
	IV	18U1VE01	Value Education- I : Yoga and Practice	2	3	1	25	75	100
			Total Hrs. & Credits	30		21			600
II	I	18U2FTA02/ 18U2FHI02	Foundation Tamil / Hindi – II	5	3	4	25	75	100
	II	18U2FEN02	Foundation English- II	5	3	4	25	75	100
	III	18U2PH02	Core – II: Heat and Thermodynamics	6	3	4	25	75	100
		18U2PHP02	Core Practical- II : Physics Practical - II	6	3	4	40	60	100
		18U2MAA02	Allied Mathematics- II	6	3	4	25	75	100
	IV	18U2VE02	Value Education- II: Values for Life	1	3	1	25	75	100
		18U2ES01	Environmental Studies	1	3	1	25	75	100
			Total Hrs. & Credits	30		22			700
III	I	18U3FTA03/ 18U3FHI03	Foundation Tamil / Hindi – III	5	3	4	25	75	100
	II	18U3FEN03	Foundation English – III	5	3	4	25	75	100
	III	18U3PH03	Core – III: Mechanics	5	3	4	25	75	100
		18U3PHP03	Core Practical – III: Physics Practical - III	6	3	4	40	60	100
		18U3CHA01	Allied Chemistry –I	4	3	3	25	75	100
		18U4CHAP01	Allied Chemistry Practical – I	3	-	-	-	-	-
	IV	18U3xxxxx	Non Major Elective Course - I	2	3	2	25	75	100
			Total Hrs. & Credits	30		21			600

Sem	Part	Subject Code	Subject	No. of Hours per Week	Exam Hours	Credit	Marks		
							CIA	ESE	Total
IV	I	18U4FTA04/ 18U4FHI04	Tamil / Hindi –IV	5	3	4	25	75	100
	II	18U4FEN04	English –IV	5	3	4	25	75	100
	III	18U4PH04	Core – IV	5	3	4	25	75	100
		18U4PHP04	Core Practical- IV	6	3	4	40	60	100
		18U4CHA02	Allied Chemistry – II	4	3	3	25	75	100
		18U4CHAP01	Allied Chemistry Practical – I	3	3	2	40	60	100
	IV	18U4xxxxx	Non Major Elective Course – II	2	3	2	25	75	100
			Total Hrs. & Credits	30		23			700
V	III	18U5PH05	Core – V	4	3	4	25	75	100
		18U5PH06	Core – VI	4	3	4	25	75	100
		18U5PH07	Core – VII	5	3	4	25	75	100
		18U5PH08	Core – VIII	5	3	4	25	75	100
		18U5PHExx	Elective – I	4	3	3	25	75	100
		18U5PHP05	Core Practical – V	6	3	4	40	60	100
		18U5PHS01	Skill Based Elective Course – I	2	3	2	25	75	100
			Total Hrs. & Credit	30		25			700
VI	III	18U6PH09	Core –IX	5	3	5	25	75	100
		18U6PH10	Core –X	4	3	4	25	75	100
		18U6PH11	Core –XI	5	3	4	25	75	100
		18U6PHExx	Elective – II	4	3	3	25	75	100
		18U6PHExx	Elective – III	4	3	3	25	75	100
		18U6PHP07	Core Practical – VI	6	3	4	40	60	100
		18U6PHS02	Skill Based Elective Course – II	2	3	2	25	75	100
			Total Hrs. & Credit	30		25			700
	VI	18U6EX01	Extension Activity: Empowering Rural People [ERP]	-	-	2	-	-	-
	Total Hrs. & Credit for 3 Years			180	-	140	-	-	4000

XX - Corresponding Elective Subject

XXXXX – Corresponding Non Major Elective Subject**.**

PROGRAMME SPECIFIC OUTCOMES:

PSO1: Obtain knowledge of fundamentals and applications of Physics concepts.

PSO2: Gain the knowledge of physics laws and equations.

PSO3: Creativity in design, setup, carryout the experiment and compare with Theoretical Prediction.

PSO4: Acquire knowledge of synthesis, Characterization and Properties of Materials.

PS05: Utilize the knowledge about energy sources to solve the present day energy Crisis.

PSO6: Create proficiency in the analysis of complex Physical problems and the Use of mathematical or appropriate technique to solve them.

PSO7: Get knowledge and aware of handled the instruments in Physics Laboratories.

PSO8: Function on multidisciplinary teams by working co-operatively creatively and responsibility as a member of a team.

PSO9: Observational, measuring and Computational techniques.

PSO10: Employability skills, Leadership quality and Entrepreneurial Skills.

PSO11: Ethics and Social Responsibility.

Department of Physics

B.Sc. Physics

CORE I - PROPERTIES OF MATTER AND ACOUSTICS

Semester: I **Credits: 4**

Course Code: 18U1PH01 **Hours/week:6**

Objectives:

1. To understand the concepts of elasticity, viscosity and surface tension.
2. To acquire knowledge of diffusion, osmosis and acoustics.

Unit I: Elasticity and Bending of Beams

Introduction - Stress - Strain - Three types of elastic moduli - Poisson's ratio- Expression for torque per unit Twist - Determination of Rigidity modulus - Torsional oscillations of a body - Rigidity modulus by Dynamic torsion method - Static torsion method - Expression for the bending moment - Uniform - non uniform bending - Theory and experiment - Pin and Microscope method - Koenig's method.

Unit II: Viscosity

Coefficient of viscosity - Critical velocity - Poiseuillie's method - Comparison of Viscosities - Determination of Coefficient of Viscosity by capillary flow method - Ostwald's viscometer - Viscosity of a highly viscous liquid - Stoke's method - Variation of viscosity with temperature and pressure - Viscosity of Gases - Mayer's formula for the rate of flow of a gas through a capillary tube - Rankine's method.

Unit III: Surface Tension

Surface tension - Surface energy - Angle of contact and its determination - Excess of pressure inside a curved liquid surface - Variation of Surface tension with temperature - Quincke's method - Experimental study of variation of Surface tension with temperature - Drop weight method of determining surface tension and interfacial surface tension.

Unit IV: Diffusion and Osmosis

Diffusion - Graham's laws of diffusion in liquids - Fick's law-Coefficient of Diffusion - Analogy with Heat Conduction - Experimental determination of Coefficient of Diffusion - Graham's law of Diffusion of Gases - Effusion of gases- Transpiration- Osmosis - Experimental Determination of osmotic pressure - Laws of osmotic pressure - Osmosis and Vapour Pressure of a Solution.

Unit V: Acoustics

Theory of free damped and forced vibration - Determination of frequency using Melde's apparatus - Doppler effect – Ultrasonic's -Production and detection of ultrasonic waves - Acoustics of buildings - Reverberation time - Derivation of Sabine's formula - Determination of absorption Coefficient.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	The basis of Elasticity and its importance in beams.	1
CO-2	Calculate the Values of Elastic constant of materials which is necessary for beam Construction.	3
CO-3	Understand the Properties of fluids and Gas Such as Viscosity, Surface Tension and Osmosis	4
CO-4	Acquire the knowledge of experimental ideas of finding viscosity and Surface tension	3
CO-5	Learned about Production, Detection and uses of Ultrasonic Waves.	5

Books for Study:

1. Properties of Matter -R. Murugesan, S. Chand & Co., New Delhi, 2004.
2. A Text Book of Sound - N. Subramaniam and Brijlal, S. Chand & Co., 2003.

Books for References:

1. Elements of Properties of Matter –D.S.Mathur, S.Chand &Co., New Delhi, 2006.
2. Fundamentals of General Properties of Matter – H.R.Gulati, S.Chand &Co., 2005.
3. A Text Book of Sound – R.L.Saighal, S.Chand &Co., 2005.
4. Properties of matter - Brijlal & N. Subramanyam, Vikas Publishng. Pvt. Ltd, 2005.
5. Text book of sound - M N Srinivasan – Himalaya Publications (1991)

Department of Physics

B.Sc. Physics

CORE II - HEAT AND THERMODYNAMICS

Semester: II **Credits: 4**

Course Code: 18U2PH02 **Hours/week : 6**

Objectives:

1. To understand the nature and transmission of heat.
2. To study the laws of thermodynamics and their applications.
3. To acquire knowledge of Maxwell's thermo dynamical relations and its applications.

Unit- I: Thermometry and Calorimetry

Concept of Heat and Temperature – Platinum resistance thermometer - Calorimeter - Principle - Barton's correction - Specific heat of liquids -Newton's law of cooling - Specific heat of gases - Mayer's relation - Determination of Cv by Joly's differential steam calorimeter - Determination of Cp by Regnault's method -Dulong and Petit's law.

Unit- II: Conduction and Radiation

Definition of thermal conductivity - Determination of thermal conductivity of a good conductor - Forbe's method - Thermal conductivity of poor conductor - Lee's disc method - Black body radiation - Wien's law - Rayleigh Jean's law - Plank's law - Stefan's law & experimental verification's of Stefan's law - Solar constant - Temperature of sun by Angstrom's Pyroheliometer.

Unit- III: Low Temperature Physics

Kinetic theory of gases - Vander Waal's equation - Derivation of critical constant - Joule Thomson effect - Porous plug experiment with theory - Liquefaction of gases - Air, Hydrogen and Helium - Properties of Helium I and II – Adiabatic demagnetization.

Unit- IV: Thermodynamics

Zeroth, first and second law of thermodynamics - Heat engines - Carnot's , petrol and diesel engines and their efficiencies - Reversible and irreversible processes - entropy - Change in entropy in reversible and irreversible processes - Temperature - entropy diagram - Third law of thermodynamics.

Unit-V: Maxwell's Thermodynamic Relations

Derivation of Maxwell's thermodynamic relations - Applications - Helmholtz function - Thermodynamic potential (or) Gibb's function - Enthalpy - Specific heat relations (Cp, Cv, μ) - Tds Equations - Clausius Clapeyron's latent heat equation - Applications.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Understand the nature of Calorimetry by specific heat of solids and gas.	1
CO-2	Acquire the knowledge of laws of thermodynamics and their applications.	2
CO-3	Learn the nature and transmission of heat by different Mechanisms.	4
CO-4	Understand about Reversible and irreversible Process and also working of a Carnot engine and knowledge of calculating change in entropy for varies process.	6
CO-5	Analyze Maxwell's thermo dynamical relations and their importance.	9

Books for Study:

1. Heat and Thermodynamics- Brijlal and Subramaniam, S. Chand & Co, New Delhi, 2006.

2. Thermal Physics, R.Murugesan, S. Chand & Co, New Delhi, 2008.

Books for References:

1. Heat and Thermodynamics- D.S.Mathur, S. Chand & Co, New Delhi, 2006.

2. Thermal Physics, A.B.Gupta and H.Roy, Allied Books, New Delhi, 2002.3

3. Heat and Thermodynamics - J. B. Rajam and C. L. Aror , S.Chand & Company Ltd., New Delhi.

4. Thermodynamics and Statistical Physics - Sharma JK, Sarkar KK, Himalaya Publishing House (1991).

5. Thermal Physics and Statistical Mechanics - Roy, S.K, Wiley Eastern Publishers, New Delhi Ltd.(2000).

Department of Physics

B.Sc. Physics

CORE III - MECHANICS

Semester: III **Credits: 4**

Course Code: 18U3PH03 **Hours/week: 5**

Objectives:

1. To acquire the knowledge of gravitation at various situation.
2. To study the concepts of hydrodynamics and dynamics.

Unit-I: Projectile and Impulse-Impact

Range up and down an inclined plane maximum range - Two directions of projections for a given velocity and range - Laws of impact - Coefficient of restitution – Oblique Impact of a smooth sphere on a fixed smooth plane - Direct impact between two smooth spheres - Losses in kinetic energy in direct impact - Oblique impact between two smooth spheres - Loss of kinetic energy due to oblique impact.

Unit-II: SHM and Dynamics of Rigid Bodies

Simple Harmonic Motion and harmonic oscillator – Energy of harmonic oscillator – Average value of the kinetic and potential energy of a harmonic oscillator - Rigid body - Translational and rotational motion - Definition of torque, angular momentum and moment of inertia - Radius of gyration - Moment of inertia of diatomic molecule - Compound pendulum theory condition - G using compound pendulum.

Unit- III: Center of gravity and Friction

Center of gravity of a solid cone, Solid hemisphere, hollow hemisphere and a tetrahedron - Laws of friction - Angle of friction - Resultant reaction and cone of friction -Experimental method for determining Co-efficient of friction between two surfaces - Equilibrium of a body on an inclined plane under the action of a force.

Unit- IV: Center of pressure and Hydrodynamics

Definition - Determination - Center of pressure of a rectangular lamina and triangular lamina with its vertex in the surface and with one side in the surface - Equation of continuity of flow - Bernoulli's theorem - Applications - Torricelli's theorem - Venturimeter - Pitot tube.

Unit -V: Gravitation

Kepler's laws of planetary motion - Newton's law of gravitation - Gravitational constant - Cavendish's method, Poynting's method and Boy's method for determination of G - Gravitation potential and field due to solid sphere and spherical shell - Escape velocity of the earth.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Understand the Basic laws of motions	1
CO-2	Determine the time of flight and range of a projectile which helps to study about the motion of a rocket and space vehicles.	2
CO-3	The concepts of hydrodynamics and the rigid body dynamics in terms of Moments of Inertia.	1
CO-4	Indentify specifically and learn the types of motion.	6
CO-5	Calculate the gravity value in different shapes	8

Books for Study:

1. Mechanics and Mathematical Methods - R. Murugesan. S.Chand and Co., 2006.
2. Properties of Matter - R.Murugesan, S. Chand and Co., 2005.

Books for References:

1. Statics, Hydrostatics and Hydrodynamics- Narayanamurthi and M.Nagarathnam, The National Publishing Company. 2008.
2.Mechanics -D.S. Mathur, S. Chand and Co., 2008.

Department of Physics

B.Sc. Physics

CORE IV - OPTICS

Semester: IV **Credits: 4**

Course Code: 18U4PH04 **Hours/week: 5**

Objectives:

1. To acquire the knowledge of optical instruments.
2. To study the concepts of interference, diffraction and polarization.
3. To study the basic aspects of optical fiber and their applications.

Unit-I: Geometrical Optics

Convex lens - Optic Centre - Cardinal Points - Principal foci and principal points -Spherical aberration of lenses - Methods of minimizing spherical aberration - Condition for minimum spherical aberration in the case of two lenses separated by a distance -Chromatic aberration in lenses - Condition for achromatism of two thin lenses[in contact and out of contact] - Coma - astigmatism - Ramsden and Huygen's eyepieces.

Unit-II: Interference

Interference in thin films - Interference due to reflected light and transmitted light -Wedge shaped film - Newton's rings - Refractive index of liquid - Michelson's interferometer - construction, working and applications - Fabry-Perot interferometer - antireflection coating - Interference filter.

Unit-III: Diffraction

Fresnel's and Fraunhofer diffraction - Zone plate-difference between convex lens and zone plate - Fresnel's diffraction at a straight edge and circular aperture - Fraunhofer diffraction at a single slit - Double slit - Resolving power - Rayleigh criterion of resolution -Resolving power of a telescope and microscope - Resolving power of a grating.

Unit-IV: Polarization

Introduction-theory of polarized light - Brewster's law - Polarizer and analyzer - Types of polarized light - Elliptically and circularly polarized light - Analysis of polarized light - Quarter wave plate - Half wave plate - Optical activity - Specific rotation - Laurent's half shade Polarimeter.

Unit-V: Laser and Optical Fiber

Laser – Spontaneous Emission – Stimulated Emission – Population Inversion – Pumping Process – He Ne Laser – CO_2 Laser - Applications of Laser.

Optical fiber - Propagation of light in optical fiber - Modes of propagation - acceptance angle - Numerical aperture- Types of optical fiber - Fiber losses - Optical fiber communication system.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Gain the knowledge on various theories and concept of light.	4
CO-2	Acquire skills to identify and apply formulas of optics and wave physics.	2
CO-3	Understand the properties and applications of light like reflection, refraction, diffraction, interference and polarization.	1
CO-4	Acquire the knowledge of resolving power of different optical instruments.	3
CO-5	Gain knowledge in optical fiber and their application in communication.	1

Books for Study:

1. Optics and Spectroscopy –R.Murugesan and Kiruthiga Sivaprasath, S.Chand & Co.,New Delhi, 2006.
2. Optics by Kanna and Gulathi.

Books for References:

1. A text book of Optics - N. Subramanian and Brijlal, Revised by M.N.Avadhanula S.Chand &Co.PVT.Ltd. NewDelhi, 2008.
2. Optics – Eugene Hecht Fourth Edition, Pearson Education, New Delhi, 2007.
3. Fundamentals of Optics- M.G.Raj , Anmol Publications Pvt.Ltd., New Delhi, 1996.
4. Optics by Ajay gattak and Thiyagarajan.

Department of Physics

B.Sc. Physics

CORE V - ELECTRICITY AND MAGNETISM

Semester: V **Credits: 4**

Course Code: 18U5PH05 **Hours/week: 5**

Objectives:

1. To study the principle and types of capacitors.
2. To understand the concepts of magnetostatics, magnetic effects of electric current and their applications.
3. To study the principle of electromagnetic induction.
4. To acquire knowledge of the magnetic properties of materials.

Unit-I: Electrostatics

Electrostatic potential - Electric potential as line integral of electric field - Relation between electric potential and electric field in vector form - Poisson's and Laplace's equations - Capacitance - Capacitance of a spherical and cylindrical capacitor - Energy of a charged capacitor - Energy density - Loss of energy due to sharing of charges. Kelvin's attracted disc electrometer - The quadrant electrometer - Heterostatic and idiostatic uses.

Unit-II: Current Electricity and Thermo Electricity

Carey Foster bridge - Theory - Temperature coefficient of resistance - Potentiometer - Calibration of ammeter and voltmeter - Thermo electricity - Seebeck effect, laws of thermo e.m.f - S.G. starling method for Peltier and Thomson effects - Peltier coefficient - Thomson coefficient - Thermodynamics of thermocouple - Expressions for π and ρ coefficients - Thermoelectric diagram and its uses.

Unit-III: Chemical Effects and Magnetic Effects of Electric Current

Electrical conductivity of an electrolyte - Specific conductivity of an electrolyte (Kohlrausch bridge) - Secondary cells - Lead acid accumulator - Standard cells - Weston Cadmium cells - Gibbs Helmholts equation for the emf of a reversible cell - Calculation of emf of a Daniel Cell - Biot-Savart law - Magnetic induction at a Point due to a straight conductor carrying current - Theory of moving coil Ballistic Galvanometer - Damping correction - Absolute capacitance of a capacitor.

Unit-IV: Electromagnetic Induction and Transient Currents

Faraday's law - Determination of self-inductance by Anderson's bridge method mutual inductance - Experimental determination of mutual inductance - coefficient of coupling - Ruhmkorff's induction coil - Growth and decay of current in a circuit containing resistance and inductance. Growth and decay of charge in a circuit containing resistance and capacitor - Measurement of high resistance by leakage - Growth and decay of charge in a LCR circuit.

Unit-V: Magnetic Properties of Materials

Alternating current - Peak, average and RMS value of current and voltage form factor Induction - Magnetic properties - Types of magnetic materials - Properties of dia, Para and ferro magnetic materials - Antiferromagnetism and ferrimagnetism - Langevin's theory of diamagnetism and paramagnetism - Weiss theory of ferromagnetism - Hysterisis - B-H curve.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Understand the principle and basics of capacitors.	2
CO-2	Apply the concepts of magneto statics, magnetic effects of electric Current and their applications.	1
CO-3	Gain the knowledge of electromagnetic induction	2
CO-4	Understand Biot-Savart law and use to compute the field due to current carrying conductors.	9
CO-5	Analyses the various magnetic properties of Materials.	4

Books for Study:

1. Electricity and magnetism - R Murugeshan, S Chand & Co., New Delhi, 2006.

Books for References:

1. Electricity and Magnetism - Brijlal and Subramanian, S Chand & Co.,New Delhi,2005.
2. Electricity and magnetism – D.N.Vasudeva, S Chand & Co., New Delhi, 2005.
3. Electricity and magnetism – K.K.Tewari, S Chand & Co., New Delhi, 2005.

Department of Physics

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CORE VI - BASIC ELECTRONICS

Semester: V **Credits: 5**

Course Code: 18U5PH06 **Hours/week: 5**

Objectives:

1. To understand the knowledge of semiconductors and Rectifiers.
2. To study the concepts of diodes, transistors and amplifiers.
3. To study the concept of feedback and their applications.

Unit-I: Semiconductors and Rectifiers

Semiconductors-intrinsic and Extrinsic semiconductor- N type and P type semiconductor-PN junction –properties – biasing – V-I characteristics of PN junction – important terms –limitations- Half and full wave (bridge) rectifiers – Efficiency of half and full wave rectifier- Ripple factor.

Unit-II: Diodes and Transistors

Zener diode-Zener diode as voltage regulator-LED- Transistors-types-different modes of operation –Characteristics in CE, CC and CB modes- Transistor biasing – Base bias-Emitter bias- Voltage divider bias- JFET- operation, Characteristics and Parameters.

Unit-III: Transistor Amplifiers

Two port representations of a transistor –h-parameters-RC coupled amplifier-frequency response-Classification of amplifiers- Class A power amplifier- push pull class B power amplifier-Emitter follower.

Unit-IV: Feedback and Oscillators

Feedback in amplifier-effect of negative feedback- concept of feedback oscillators-Hartley-Colpitt-Phase shift and Wein bridge oscillators-expressions for frequency of oscillation and condition for oscillation in each case.

Unit-V: Operational Amplifier and Multivibrators

Operational Amplifier theory – Inverter – non inverter-Adder - Subtractor-differentiator - Integrator- Multivibrators -Astable, Monostable and Bistable multivibrators using transistors.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Apply the concept of Semiconductor physics	1
CO-2	Describe the working of rectifier circuits.	3
CO-3	Understand operation of diodes, Transistors in order to design basic circuits	3
CO-4	Design small and large signal amplifier circuits for various practical applications	3
CO-5	Design and explain elaborate principles of oscillator, Oscillator types and frequency stability to its operation.	3
CO-6	Design ideal and practical Op-Amp, their electrical parameters, need for Op-Amp. Explain and design different applications circuits using Op-Amp.	5
CO-7	Design, Fabricate and test Small electronic Circuits.	3,11

Books for Study:

1. Basic Electronics (Solid state), B.L. Theraja, S. Chand & Co., New Delhi, 2005.
2. Principles of Electronics, V.K.Metha, S. Chand & Co., New Delhi, 2007.
3. Basic Electronics and linear integrated circuits -N.N.Bhargava, D.C.Kulshreshtha, S.C.Gupta - Tata McGraw-Hill Company, New Delhi, 2004

Books for References:

1. Handbook of Electronics – Gupta and Kumar,Pragati Prakhasan,Meerut Publications, 2004.
2. Integrated Circuits, K.R.Botar, Khanna Publishers,Delhi, 2005.
3. Operational Amplifier,Gayakwad,TMG Hill, 2004.

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CORE VII - SOLID STATE PHYSICS

Semester: V **Credits: 4**

Course Code: 18U5PH07 **Hours/week: 5**

Objectives:

1. To understand the concept of crystal structure and properties of the materials.
2. To study the requirement of the material for specific applications.

Unit - I: Crystal Structure

Crystal lattice - Primitive and unit cell – Seven systems of Crystal - Bravais lattice - Miller indices - Structure of Crystals - Simple Cubic, Hexagonal Close Packed Structure, Face Centered Cubic Structure - Body Centered Cubic Structure, Simple Cubic Structure, Sodium Chloride Structure, Zinc blende Structure, Diamond Structure.

Unit- II: Crystallography and Crystal Imperfections:

Bragg's law in one dimension - Experimental method in X-ray diffraction - Laue method, Rotating crystal method - Powder Photograph Method - Von Laue's equation - Point defects - Line defects - Surface defects - Volume defects - Effects of crystal imperfections.

Unit - III: Dielectric Properties

Fundamental definition in dielectrics - Different types of electric Polarization - Frequency and temperature effects on polarization - Dielectric loss - Clausius - Mosotti relation - Determination of dielectric constant - Dielectric breakdown - Properties of different types of insulating materials.

Unit - IV: Superconductivity

Superconductivity - Electrical resistivity - Meissner effect - Critical field and Critical temperature - Type I and Type II Superconductors - Thermodynamic and Optical properties. Isotope effect - BCS theory - Cooper pair - Flux quantization - Josephson effect - Applications.

Unit - V: Nanomaterials

Basic of nano materials-Classification of Nanomaterials - Nanorods - Nanotubes – Nanopartiels - Synthesis of Nanophase materials - Plasma Arching-Sol

gel method-Properties of Nanoparticles. Applications of Nanoparticles-Carbon Nanotubes-Structure of Carbon Nanotubes - Properties of Carboqn Nanotubes - Applications of Carbon Nanotubes.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Recognize and also give the lattice parameter relationships for all seven crystal systems--i.e., cubic, hexagonal, tetragonal, rhombohedral, orthorhombic, monoclinic, and triclinic.	1
CO-2	Relate the crystalline structure of X-ray diffraction and crystal imperfections.	9
CO-3	Expected to gain knowledge of superconductivity, its underlying principles and its applications in modern world.	1
CO-4	Acquire the knowledge of Dielectric Properties of different solids.	4
CO-5	Apply physics principles in solid state physics to explain various physical, electrical and optical properties of materials.	1

Books for Study:

1. Material Science - M. Arumugam, Anuradha Agencies, 2004.
2. Solid State physics – Gupta, Kumar & Sharma - K.Nath & Co., 2004.
3. Engineering Physics – II, Dr. Senthil Kumar, VRP Publisher. 2013.

Books for References:

1. Introduction to Solids by Azaroff, 2004. Solid State Physics by A.J.Deckker, 2004.
2. Introduction to Nanomaterials by R.Pradeep kumar 2005.
3. Solid State Physics – R.K.Puri and V.K.Babbar, S.Chand & Co., 2008.

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CORE VIII - MATHEMATICAL PHYSICS

Semester: V **Credits: 4**

Course Code: 18U5PH08 **Hours/week: 5**

Objectives:

1. To impart mathematical knowledge for the description of physical phenomena.
2. To provide basic skills to learn and appreciate physics through mathematics.

Unit – I: Vectors

Introduction - Representation of vectors- Addition of vectors- Subtraction of vectors - Multiplication of a vector by a scalar-Vector space - Condition to be representable by a vector- Resolution of vectors - Linear combination of vectors - Simple applications to mechanics (concurrent forces, work done by a force).

Unit - II: Matrices

Solution of linear equation - Cramer's rule - Characteristics matrix and characteristics equation of a matrix - Eigen values and Eigen vectors - Sub space and null space - Transformations - Hermitian forms - Diagonalisation of 3 x 3 symmetric matrices.

Unit - III: Fourier series and Fourier transform

Dirichlet's conditions - Complex representation of a Fourier's series - Physical applications of Fourier series - Fourier transforms - Applications of Fourier transforms to boundary value problems.

Unit - IV: Laplace transform

Introduction - Definition of the integral transform-Deduction of the laplace transform from that of the integral transform-Definition of the Laplace transform - Some properties of the Laplace transforms-Linear property-First translation property - Second translation property-Change of scalar property.

Unit - V: Maxwell's electromagnetic field equations

Maxwell's equations for electromagnetic field - Relations connecting divergence and curl of D and B - Physical interpretation of Maxwell's equations-Decaying of free charge- Poynting vector and Poynting theorem.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Understand the importance of vectors and their applications.	1
CO-2	Find out Eigen value and vectors by using Matrix.	3
CO-3	Get ideas of fundamental and applications of Fourier serious and Fourier transform to solve various wave functions. .	6
CO-4	Gain the elaborate knowledge of properties of Laplace transform.	6
CO-5	Acquire knowledge of Maxwell's equations in electromagnetic field equations.	2

Books for study:

1. Mathematical physics- Sathyaprakash, S.Chand, New Delhi, 2004.
2. Mathematical physics- B.D.Gupta, S.Chand, New Delhi, 2005.

Books for References:

1. Mathematical Physics - Manikavasakam Pillai.
2. Mathematical Physics- Chattopadhyay, Wiley Eastern Ltd., New Delhi, 1990.
3. Mathematical Physics – S.S.Rajput , Pragati Pragasan, Meerut, 1996.

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CORE IX - ATOMIC PHYSICS

Semester: VI **Credits: 4**

Course Code: 18U6PH09 **Hours/week: 5**

Objectives:

1. To study the positive ray analysis.
2. To study the structure of the atom, atom models and X-rays.

Unit – I: Positive Ray Analysis

Properties of Positive rays - Thomson's Parabola method - Aston's mass spectrograph. Photoelectric effect - Lenard's method to determine e/m for Photoelectrons - Richardson & Compton experiment - Failure of the electromagnetic theory - Einstein's Photoelectric equation - Experimental verification of Einstein's Photoelectric equation by Milliken's experiment - Photoelectric cells and applications.

Unit – II: Structure of the Atom

Theory of α-particle scattering - Rutherford scattering formula - Experimental verification - Bohr atom model - effect of Nuclear motion of Atomic Spectra - Evidences in favour of Bohr's theory - Correspondence principle - critical potential - Davis and Goucher's method - Sommerfeld's relativistic atom model - Application to fine structure of H_α line.

Unit-III: Vector Atom Model

Description of vector atom model - Quantum numbers associated with vector atom model - Coupling schemes - L-S and J-J couplings - Pauli's exclusion principle - Electronic configuration of elements and periodic classification - Magnetic dipole moment of electron due to orbital and spin motion - Stern and Gerlach experiment - Spin-Orbit Coupling.

Unit – IV: Fine Structure of Special Lines

Spectral terms and notations - Selection rules - Intensity rule and interval rule - Fine Structure of sodium D lines - Hyperfine structure - Zeeman effect - Larmor's theorem - Debye's quantum mechanical explanation of the normal Zeeman effect - Anamolous Zeeman effect - Paschen-Back effect and Stark effect.

Unit – V: X- Rays

Production of X-Rays - Absorption of X-Rays - Bragg's X-ray spectrometer - X Ray Spectra - Features of continuous X-Ray spectrum - Characteristic X-Ray spectrum -Mosley's law and its importance - Compton scattering - Compton effect - Derivation of expression for change in wavelength - Its experimental verification.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Understand the concept of mass spectrograph and photo electric effect.	1
CO-2	Explain the main features of the structure of the hydrogen atom and the various contributions to the energy of atomic states of hydrogen.	7
CO-3	Acquire knowledge about vector atom model and principle of the elements arrangement in periodic table.	2
CO-4	Identify the spectral terms, notation, selection rules of spectral lines and atomic effect such as Zeeman Effect and Stark effect.	9
CO-5	Clear understanding about x-ray production, diffraction and Compton Effect.	11

Books for Study:

1. Modern Physics by R. Murugeshan, S Chand & Co., New Delhi, 2007.

Books for References:

1. Atomic Physics by J.B. Rajam, S Chand & Co., New Delhi, 2004.
2. Atomic and Nuclear Physics – S.N.Ghoshal, S Chand & Co., New Delhi, 2004.
3. Atomic Spectra – White, Mc Graw Hill International Book Company, 2003.

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CORE X – NUCLEAR PHYSICS

Semester: VI **Credits: 4**

Course Code: 18U6PH10 **Hours/week: 5**

Objectives:

1. To study the structure and models of nucleus and also to study the process of radioactivity and its applications.
2. To study the working of detectors, accelerators.
3. To understand the aspects related to Cosmic rays and elementary particles.

Unit- I: Introduction to the Nucleus

Size, Mass, Spin angular momentum, Magnetic dipole moment, Electric quadrupole moment (No experimental determination) - Binding energy - Nuclear forces - Liquid drop model and Weizsacker's semi empirical mass formula - Shell model and magic numbers.

Unit- II: Radio Activity

Natural radioactivity - Half life period and decay constant - Laws of successive disintegration - Radioactive equilibrium: Transient and secular equilibrium - Radioactive dating : age of the earth - Geiger-Nuttal law and its experimental verification - Gamow's theory of alpha decay - Neutrino theory of beta decay - Wavelength determination of gamma rays - Nuclear isomerism - Internal conversion.

Unit- III: Radiation Detector and Particle Accelerators

Principle, construction and working: Ionization chamber - Geiger Muller counter - Wilson cloud chamber - Bubble chamber - Photo emulsion techniques - Scintillation counter - Linear accelerators: Cyclotron – Betatron - Synchrocyclotron.

Unit-IV: Nuclear Reactions

Artificial transmutation - Uses of radio isotope - Energy balance in nuclear reaction: Q- value - Nuclear fission - Energy released in fission - Chain reaction - Critical size for Maintenance of chain reaction - Nuclear reactors - Nuclear fusion - Source of stellar energy - Thermonuclear reaction - Controlled thermonuclear reaction.

Unit-V: Cosmic Rays and Elementary Particles

Discovery of cosmic rays - Latitude, azimuth and altitude effect - Cosmic ray showers: cascade theory of showers, pair production - Discovery of positron - Origin of cosmic rays - Primary, secondary cosmic rays - Classifications of elementary particles - Four types of interaction - Elementary particle Quantum numbers - Conservation laws.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Gain a clear picture of nuclear composition and various nuclear models.	4
CO-2	Have a deep knowledge about Radio activity, nuclear Fission and Nuclear Fusion, the relevance of nuclear transformation.	5
CO-3	Understand the working of nuclear detectors and counters; realize the importance of Cosmic rays and its effects on earth.	7
CO-4	Become familiar with nuclear particles and different particle accelerators	7

Books for Study:

1. Modern Physics -R. Murugesan, S.Chand & Co., New Delhi, 2007.
2. Nuclear Physics - D.C.Tayal, Himalaya Publishing House, 2011.

Books for References:

1. Atomic and Nuclear Physics – Albrignt Semat , Chapman and Hall, 2003.
2. Basic Nuclear Physics and Cosmic Rays – B.N. Srivatsava, Pragati Pragasan, 2004.

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CORE XI - QUANTUM MECHANICS AND RELATIVITY

Semester: VI **Credits: 4**

Course Code: 18U6PH11 **Hours/week: 5**

Objectives:

1. To understand the concepts of wave mechanics and dual nature of matter.
2. To study the linkage between classical and quantum mechanics.
3. To apply the Schrodinger equation to physical systems.

Unit - I: Origin of Quantum Mechanics

Inadequacy of classical mechanics - Difficulties with classical theory of black body radiation - Planck's quantum hypothesis and radiation law - Quantum theory of radiation and photons - Important application of quantum theory of radiation - Compton effect -limits of applicability of Classical theory - Decline of old quantum theory.

Unit - II: Wave nature of Matter

De-Broglie's concept of matter waves - De-Broglie wavelength - Wave velocity and phase velocity - Wave packet - Expression for group velocity related to velocity and phase velocity - Experimental study - G.P.Thomson's experiment - Davission and Germer Experiment.

Unit - III: Wave Mechanics

Concept of wave function - Physical significance of wave function - Basic postulates of Wave mechanics - Heisenberg's uncertainty principle - Illustrations - Schrodinger time independent and dependent wave equation - Eigen value and Eigen functions.

Unit - IV: Application of Wave Mechanics

Application of Schroedinger equation - Free particle solution of Schroedinger's equation - Particle in a box - Barrier penetration problem - Linear harmonic oscillator - Rigid rotator - Hydrogen atoms - Interpretation of quantum numbers.

Unit – V: Relativity

Frame of reference - Gallilian transformation - Michelson - Morley experiment - Postulates of special theory of relativity - Lorentz transformation - Length Contraction - Time dilation - Relativity of Simultaneity - Addition of velocities - Variation of mass with Velocity - Mass - Energy relation.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Have gained a clear knowledge about wave Properties of particles.	4
CO-2	De Broglie waves and its implications on the uncertainty principle.	1
CO-3	To find solution to Schrödinger's equation for many systems such as Particle in a box, Hydrogen Atom and familiarize with different quantum Numbers	6
CO-4	Understand the idea of Wave Mechanics and Application of Wave Mechanics	1
CO-5	Understand the concept of constant relative motion of different bodies in different frames of references.	7

Books for Study:

1. Quantum Mechanics – S.P.Singh , M.K.Bagde- S.Chand & company Ltd, New Delhi,
2. Modern Physics -R. Murugesan, S.Chand & Co.,New Delhi, 2007.

Books for References:

1. A Text Book of Quantum Mechanics- Mathews and Venkatesan Tata Mc Graw Hill ,New Delhi, 2003.
2. Quantum Mechanics- V.K.Thangappan, New Age International New Delhi, 2004.

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CORE PRACTICAL I - PHYSICS PRACTICAL – I

Semester: I **Credits: 4**

Course Code: 18U1PHP01 **Hours/week: 6**

1. Young's Modulus –uniform Bending – Pin and microscope method
2. Torsion pendulum –Rigidity Modulus- Without mass
3. Surface tension and Interfacial surface tension – Drop Weight method
4. Sonometer – Frequency of a fork.
5. Specific heat capacity - Joule's calorimeter.
6. Focal length of concave lens and convex lens.
7. Meter bridge-Resistivity of the material of a wire.
8. Potentiometer-Internal resistance of a cell.
9. Spectrometer – Refractive index.
10. Resistance of a galvanometer.
11. Characteristics of a junction diode.
12. Construction of a low range power pack (using two diodes).
13. IC logic gates – OR, AND, NOT, NOR, NAND.
14. Verification of Demorgan's theorem.
15. Characteristics of a Zener diode.

Books for References:

1. A Text Book of Practical Physics – M.N. Srinivasan, S.Balasubramanian, R.Ranganathan, S.Chand & Co., New Delhi, 2004.

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CORE PRACTICAL II - PHYSICS PRACTICAL – II

Semester: II **Credits: 4**

Course Code: 18U2PHP02 **Hours/week: 6**

1. Young's Modulus – Uniform Bending – Scale and Telescope method.
2. Torsion pendulum – MI and Rigidity Modulus- with symmetrical mass.
3. Sonometer – R.D of the solid and liquid.
4. Viscosity of a highly viscous liquid Stoke's method.
5. Joule's calorimeter – Specific heat capacity of a liquid – Barton's correction
6. Copper Voltameter – M and B_H determination.
7. Air wedge –Thickness of wire.
8. Spectrometer - Dispersive power of the prism
9. Potentiometer - Calibration of low range voltmeter
10. Carey - Foster's bridge - Specific resistance of the material of the given coil.
11. Potentiometer - Comparison of EMF of two cells
12. B.G. - Current and Voltage sensitivities of a Galvanometer.
13. B.G. - Comparison of EMF of two cells
14. Bridge rectifier with voltage regulator. (Zener diode)
15. Half adder and subtractor.

Books for References:

1. A text book of Practical Physics –M.N.Srinivasan, S.Balasubramanian, R.Ranganathan,S.Chand & Co., New Delhi, 2004.
2. Practical Physics – Department of physics, St.Joseph's College,Trichy, 2005.

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CORE PRACTICAL III - PHYSICS PRACTICAL – III

Semester: III **Credits: 4**

Course Code: 18U3PHP03 **Hours/week: 6**

1. Young's Modulus - Non uniform Bending - Pin and microscope method(unknownMass)
2. Compound pendulum - Acceleration due to gravity
3. Young's Modulus by Cantilever - Scale and Telescope method
4. Sonometer - Frequency of A.C. mains using bar magnet and brass wire.
5. Spectrometer - i-d curve.
6. Newton's rings - Refractive index of lens.
7. Post office box - Temperature coefficient of resistance
8. Viscosity of liquid - Capillary flow graduated burette.
9. Specific heat capacity - Method of mixtures.
10. Spectrometer - Grating - Normal incidence method.
11. Carey - Foster's bridge - Temperature coefficient of resistance.
12. B.G. - Comparison of capacitances Using DPDT Switch.
13. Full adder and subtractor.
14. Transistor characteristics.
15. Zener diode - Voltage regulator.

Books for References:

1. A text book of Practical Physics –M.N.Srinivasan, S.Balasubramanian, R.Ranganathan,S.Chand & Co., New Delhi, 2004.
2. Practical Physics – Department of physics, St.Joseph's College,Trichy, 2005.

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CORE PRACTICAL IV - PHYSICS PRACTICAL – IV

General Physics Experiments

Semester: IV **Credits: 4**

Course Code: 18U4PHP04 **Hours/week: 6**

1. Young's Modulus - Non uniform Bending - Scale and Telescope method (unknown Weight).
2. Young's Modulus by Cantilever - Pin and microscope method.
3. Surface tension of the liquid - Capillary rise method.
4. Specific heat capacity of a liquid - Newton's law of cooling.
5. Spectrometer - Cauchy's constant.
6. Spectrometer - Grating minimum deviation.
7. Newton's rings - Refractive index of a liquid.
8. Potentiometer - Calibration of low range ammeter.
9. Potentiometer - Specific resistance of the material of wire.
10. Sonometer - frequency of A.C. mains using electro magnet and steel wire.
11. Field along the axis of a coil - Deflection Magnetometer.
12. B.G. - Charge sensitivity figure of merit.
13. B.G. - Determination of absolute capacitance.
14. FET - characteristics.
15. Flip - Flops using gates.

Books for References:

1. A text book of Practical Physics –M.N.Srinivasan, S.Balasubramanian, R.Ranganathan,S.Chand & Co., New Delhi, 2004.
2. Practical Physics – Department of physics, St.Joseph's College,Trichy, 2005.

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CORE PRACTICAL V - PHYSICS PRACTICAL – V

General Physics Experiments

Semester: V **Credits: 4**

Course Code: 18U5PHP05 **Hours/week: 3**

1. Young's Modulus - Koenig's method - Uniform bending method
2. Young's Modulus by Cantilever - Dynamic method
3. Coefficient of viscosity - Ungraduated burette-Radius by mercury pellet.
4. Spectrometer - i-i' curve
5. Spectrometer - Dispersive power of grating.
6. M and B_H - Deflection Magnetometer - TAN A and TAN B position.
7. Potentiometer - Calibration of high range voltmeter.
8. Potentiometer - EMF of a thermocouple.
9. B.G. - Comparison of capacitances - Desauty's method.
10. B.G. - Absolute determination of mutual inductance.
11. Op-amp - Adder and subtractor.
12. Single stage amplifier using Transistors.
13. Hartley oscillator
14. Monostable multivibrator using Transistors
15. Microprocessor (8085) - Addition and subtraction.

Books for References:

1. A text book of Practical Physics –M.N.Srinivasan, S.Balasubramanian, R.Ranganathan,S.Chand & Co., New Delhi, 2004.
2. Practical Physics – Department of physics, St.Joseph's College,Trichy, 2005.

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CORE PRACTICAL VI - PHYSICS PRACTICAL – VI

Semester: VI **Credits: 4**

Course Code: 18U6PHP06 **Hours/week: 3**

1. Young's Modulus - Koenig's method - Non uniform bending method (unknown Weight)
2. Rigidity modulus by static torsion.
3. Lee's disc - Coefficient of thermal conductivity of a bad conductor.
4. M and B_H - Deflection magnetometer-Tan C position.
5. Potentiometer - Calibration of high range ammeter.
6. Spectrometer - Narrow angled prism.
7. Spectrometer - Biprism.
8. B.G. - Comparison of mutual inductances.
9. B.G. - High resistance by leakage.
10. Op-amp - Differentiator and integrator
11. Two stage amplifier using Transistors
12. Colpitt's oscillator.
13. Astable multivibrator using Transistors
14. Bistable Multivibrator using Transistors
15. Microprocessor (8085) - Multiplication and division.

Books for References:

1. A text book of Practical Physics –M.N.Srinivasan, S.Balasubramanian, R.Ranganathan,S.Chand & Co., New Delhi, 2004.
2. Practical Physics – Department of physics, St.Joseph's College,Trichy, 2005.

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ELECTIVE COURSE - SPECTROSCOPY

Semester: V or VI **Credits: 3**

Course Code: 18UxPHE01 **Hours/Week:4**

Objectives:

1. To understand the concepts of spectroscopy.
2. To study the principle of Electronic and Microwave spectroscopy.
3. To acquire knowledge of the IR and Raman spectroscopy.

Unit-I: Introduction to Spectroscopy

Introduction-properties of electromagnetic radiation –regions of spectrum – types of molecular energies-basic elements of practical spectroscopy.

Unit-II: Electronic Spectroscopy

The Born-Oppenheimer approximation – vibrational coarse structure-Franck-Condon principle – Rotational fine structure of electronic –vibration transitions—chemical analysis by electronic spectroscopy-techniques and instrumentation.

Unit-III: Microwave Spectroscopy

Microwave Spectroscopy- Theory-pure rotational spectra of diatomic molecules-rigid rotator –symmetric and asymmetric top molecules-microwave spectrometer-microwave oven.

Unit-IV: Infrared Spectroscopy

The energy of diatomic molecules - the simple harmonic oscillator-the diatomic vibrating rotator-the vibration rotation spectrum of carbon monoxide-breakdown of the Born –Oppenheimer approximation-techniques and instrumentation-double and single beam operation.

Unit-V: Raman Spectroscopy

Raman effect- classical and quantum theory-molecular polarizability-pure rotational Raman spectra of linear molecules-vibrational Raman spectra structure determination spectroscopy-techniques and instrumentation.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Understand the basic knowledge of interaction between electromagnetic radiation and molecules.	1
CO-2	Understand rotational, vibrational, and electronic spectra.	2
CO-3	Acquire the knowledge of properties of electromagnetic radiation	4
CO-4	understand the basic concepts in nuclear Raman spectroscopy	1
CO-5	Gain the knowledge on the techniques and instrumentation of IR and Raman spectroscopy.	7

Books for Study:

1. Fundamentals of Molecular Spectroscopy, Banwell, Tata Mcgraw Hill, New Delhi, 2005.
2. Elements of Spectroscopy- Gupta, Kumar& Sharma – Prakati prakasan publications, 2006.

Books for References:

1. Vibrational Spectroscopy Theory and Applications – D.N.Sathyanarayana, New Age internationals Publishers, 2004.
2. Basic Principles of Spectroscopy – Chang Raymond , Mc Graw Hill.

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ELECTIVE COURSE - NUMERICAL METHODS

Semester: V or VI **Credits: 3**

Course Code: 18UxPHE02 **Hours/Week: 4**

Objectives:

1. To understand the concepts of numerical methods.
2. To study the different types of curve fitting and iterative methods.
3. To learn some physical problems using numerical differentiation and integration.

Unit – I: Curve Fitting

Principle of least square – fitting a straight line – linear regression – fitting a parabola - fitting an exponential curve.

Unit – II: Iterative Methods

Solving Non–linear equation – bisection method – Successive approximation – Newton Raphson method – modified Euler's method – Runge – Kutta method (Second and third orders only)

Unit – III: Simultaneous Linear Equation

Solution of simultaneous linear solution-Gauss elimination method-iterative methods-Gauss-Jacobi method-Gauss Seidal method

Unit – IV: Methods of Interpolation

Newton's definite interpolation –equal and unequal intervals- Newton's forward interpolation formula- Newton's backward interpolation formula-Bessel formula-Lagrangian method.

Unit – V: Numerical Differentiation and Integration

Introduction- Newton's forward difference formula- Newton's backward difference formula-Stirling's formula-Trapezoidal rule – Simpson's ⅓ and ⅜ rules.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Able to evaluate the external of functions using Euler's equation.	6
CO-2	Apply Numerical analysis which has enormous application in the field of Science and some fields of Engineering.	9
CO-3	Familiar with numerical solutions of nonlinear equations in a single variable.	6
CO-4	Familiar with numerical integration and differentiation, numerical solution of ordinary differential equations.	1
CO-5	Demonstrate the use of interpolation methods to find intermediate values in given graphical and/or tabulated data.	10

Books for Study:

1. Numerical Method in Science and Engineering, M.K.Venkataraman, The National Publishing Company, Chennai, 1997.
2. Numerical Methods – A.Singaravelu, Meenakshi Agency, Chennai, 2001.

Books for References:

1. Introductory Methods of Numerical Analysis – S.S.Sastry, Prentice Hall of India, New Delhi, 2000.

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ELECTIVE COURSE - ELECTRONIC COMMUNICATION

Semester: V or VI **Credits: 3**

Code: 18UxPHE03 **Hours/week: 4**

Objectives:

1. To study the different types of modulation systems and its applications.
2. To know the TV and RADAR systems.
3. To study the digital communication systems.

Unit – I: Modulation

Modulation - Types of modulation AM, FM, PM - Expression for amplitude modulated voltage - Wave form of amplitude modulated wave - Collector modulation circuit - Single side band generation - Balanced modulator - AM transmitter - Frequency modulation - Expression for frequency modulated voltage - Comparision of AM, FM and PM.

Unit – II: Demodulation

Demodulation - definition - Diode detection of AM signals - FM detection - Foster Seely discriminator-Radio receivers - Straight receivers - TRF receivers - Super heterodyne receivers - Explanation of each stage - FM receivers.

Unit – III: Television

TV - Plumbicon - Vidicon - Image orthicon - Scanning and interlaced scanning - TV transmitter and receiver - Colour TV - Generation R, G, B signals - Colour TV transmitter and receiver - TV transmitting antennas - dipole panel - TV receiving antenna - Yagi antenna - log antenna - log periodic antenna.

Unit – IV: RADAR

RADAR - Principle of radar - Radar equation - Radar - Transmitting systems - radar antennas - Duplexer - Radar receivers uses of radar - Opto electronic devices - Photoconductive cell - Solar cell - Phototransistor - LED - LCD Construction and working.

Unit – V: Digital communications

Digital communications -Digital technology -Fundamentals of data communication systems - Characteristics of data transmission circuits - Digital codes

- Error detection and correction - Data sets and inter connection - Requirements - Modern classification - Modern interfacing.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Use of different modulation and demodulation techniques used in analog communication	1
CO-2	Identify and solve basic communication problems	2
CO-3	Analyze transmitter and receiver circuits	7
CO-4	Compare and contrast design issues, advantages, disadvantages and limitations of Digital communication systems	9
CO-5	Understand the fundamental concepts of television transmitter and receiver systems, the transmission of video signals and importance of television standards to effectively work with broadcasting applications, trouble shooting of television systems.	1

Books for Study:

1. Hand book of Electronics - Gupta & Kumar, Pragati Prakhasan, 2004.
2. Electronics Communication Systems - Kennedy and Davis, TMH, 2005.
3. Monochrome and color television -R.R. Gulati.
4. Semiconductor Physics and Opto electronics -Dr. M. Arumugam.

Books for References:

1. Principles of communication Systems – Taub and Schilling,TMH, 2003.
2. Microwave and Radar Engineering – M.Kulakarni,Umesh Publications,
3. Satellite Communications – Monojit Mitra, Prentice Hall, 2007.

ELECTIVE COURSE - DIGITAL ELECTRONICS AND MICROPROCESSOR

Semester: V or VI **Credits: 3**

Course Code: 18UxPHE04 **Hours/week: 4**

Objectives:

1. To study the number systems, the function of logic gates.
2. To study the simplification of logic circuits.
3. To study the principle of various types of flipflops and counters.
4. To study the architecture and instruction set of 8 bit microprocessor.
5. To write the assembly and machine language programs for 8 bit microprocessor

Unit-I: Number Systems and Logic Gates

Number systems-conversion from number to another—BCD code-binary addition-subtraction -logic gates-AND, OR and NOT gates-Boolean algebra-laws-simplification - Demorgan's theorems-NAND, NOR gates-universal building blocks.

Unit-II: Simplification of Logic circuits

Sum of products-product of sums- simplification by Karnaugh map-pairs-quads-octets-up to four variables-Half adder-full adder-half subtractor and full subtractor-decoder-encoder-multiplexer-demultiplexer.

Unit-III: Flip flops and Counters

Flip flops- RS flip flop- JK flip flop- D flip flop- T flip flop-master slave flip flop-shift register-counters-binary counter-BCD counter.

Unit-IV: Microprocessor 8085

Microcomputer-architecture of 8085 microprocessor-registers-flags-ALU-address bus and data bus-word length-instruction word size-pin configuration of 8085 and its functions.

Unit-V: Instruction Modes and Programming

Instruction set of 8085- Addressing modes-register-indirect-direct – immediate and implicit addressing modes-assembly language and machine language-programming exercises-addition-subtraction-multiplication and division.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Explain different number system. Solve examples on converting one from to another form.	1
CO-2	Gain elaborate view of Boolean laws and theorems and explain the different logic gates	2
CO-3	Develop a digital logic and apply it to solve real life problems.	10
CO-4	Analyze, Design and implement combinational logic circuits.	5,8
CO-5	Analyze, Design and implement Sequential logic circuits.	3
CO-6	Explain architecture of 8 bit microprocessor and its operation within the area of manufacturing performance.	1
CO-7	Apply knowledge and demonstrate programming proficiency using the various addressing modes and data transfer instructions.	1
CO-8	Understand and apply the fundamentals of assembly level programming of microprocessor.	1
CO-9	Train their practical knowledge through laboratory experiments.	6

Books for Study:

1. Digital Principles and Applications –Malvino & Leach-Tata Mc Graw Hill Publishing company Ltd, NewDelhi.
2. Fundamentals of Microprocessor and Microcomputers –B.Ram –Dhanpat Rai Publication, New Delhi.

Books for References:

1. Digital Electronics- A.P.Godse, Technical Publisher, Pune,2011.
2. Microprocessor Architecture Programming and Applications – Gaonkar, TMH, 2000.

Department of Physics

B.Sc. Physics

ELECTIVE COURSE - MEDICAL PHYSICS

Semester: V or VI **Credits: 3**

Course Code: 18UxPHE05 **Hours/week: 4**

Objectives:

1. To study the biomedical instruments.
2. To study the X-rays and related to medical applications.

Unit-I: Electrodes

Bioelectric signals- electrodes - types of electrodes- Needle and depth electrode- Micro electrode- Surface electrode- Basic principle and working of Electro Cardio Graphy (ECG) - Basic principle and working of electromyography (EMG).

Unit-II: Pace Makers and Heart Valves

Introduction to pace makers - External and internal pace makers - Principle, block diagram and operation of artificial heart valves - Basic principle of MRI Scanning.

Unit-III: X-ray imaging

Basic of X-rays - X-ray imaging - basic principles of x-ray tomography- anesthesia machine - recording fetal heart movement and blood circulation using Doppler ultrasonic method.

Unit-IV: Radiation safety instrumentation

Radiation safety instrumentation - Effects of radiation exposure- Radiation monitoring instruments - Pocket dosimeter - Pocket type radiation alarm.

Unit-V: Blood pressure measurement

Blood cell counter - Blood pressure measurement - Direct and indirect method- Haemocytometer - counting of RBCs and WBCs - Area monitoring instrument- Medical application of laser and endoscopes.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	To provide the knowledge on the importance of treatment efficacy quality and accuracy of radiation therapy treatments through improved clinical dosimetry.	1
CO-2	Understand the physics and theory behind the bio electric signal recording.	2
CO-3	How physics is applied to the problems of clinical measurement, diagnosis, patient management and biomedical research using various Medical Imaging Technique.	10
CO-4	Able to effectively act as medical radiation safety officer in diagnostic and therapy departments.	5
CO-5	Perform the clinical support procedures required of a medical physicist.	10

Books for Study:

1. Biomedical Instrumentation- Dr.M.Arumugham, Anuradha Agencies, Publishers, 2003.
2. Handbook of biomedical instrumentation – R.S.Khandpur, TMG, New Delhi.

Books for References:

1. Medical instrumentation – John G. Webster, John Wiley & Sons, 2006.
2. Bioinstrumentation – L.Veerakumari, 2006.

Department of Physics

B.Sc. Physics

SBEC - ELECTRICAL APPLIANCES

Semester: V **Credits: 2**

Course Code: 18U5PHS01 **Hours/Week: 2**

Objectives:

1. To study the different types of heating and welding process.
2. To understand the principles and applications of transformers.
3. To provide basic aspects of domestic appliances.

Unit – I: Heating

Electric heating – modes of transfer of heat – methods of electric heating- resistance heating- induction heating- high frequency eddy current heating-dielectric heating.

Unit – II: Welding

Resistance welding- electric arc welding – DC and AC welding equipment – energy storage welding- industrial welding.

Unit – III: Principles of Transformers

Principle of operation-constructional details- core type, shell type- classification of transformers- EMF equation – voltage ratio- current ratio- transformer on no load- auto transformer- principle – applications.

Unit – IV: Applications of Transformers

Three phase transformer- connections- star- star, star-delta and delta-star – parallel operation of transformers- load sharing – cooling of transformers – loses in transformer.

Unit - V: Domestic Appliances

Theory and principle of operation of Fan – Wet grinder- Water heater- Electric iron – Refrigerator – Microwave oven.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Learnt about various types and methods of heating	1
CO-2	Pupil got detailed description about electrical welding and their applications.	1
CO-3	Got awareness about the different modes of lighting schemes and energy saving in lighting	5
CO-4	List out types of electrical appliances and their applications	4
CO-5	Provides clear details about transformer and its working principles.	2

Book for Study:

1. Utilisation and conservation – A.Allwyn Clarence Asis,R.Pon Vengatesh, 2010.
2. Electrical Engineering- J.Gnanavadivel, N.Rathinaprabha, C.Senthikumar and P.Maruthupandi, 2010.

Books for References:

1. A text book in electric power, P.L. Soni, P.V.Gupta and V.S.Bhatnagar,
2. Utilisation of electrical energy, E.O.Taylor,Oriet Longman
3. Art and Science of Utilisation of Electrical Energy, H.Partas, M/s Dhanpat Raji & sons, New Delhi.

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SBEC - PROGRAMMING IN C LANGUAGE

Semester: VI **Credits: 2**

Course Code: 18U6PHS02 **Hours/ week: 2**

Objectives:

1. To develop the computer knowledge and to impart the computing skill through C language.
2. To write simple programs for general and physics related problems using C language.

Unit – I:

Block diagram of Processing Unit - programming languages - Algorithms - flow charts - operating system and its function.

Unit – II:

Basic structure of C Programs - Constants - Variables - Data type - operators and expression - Reading a character - Writing a character - formatted input and output statements.

Unit – III:

If statements - simple if, if – else, else if ladder - switch statements - go to statement - looping -While-do-for statements - Arrays

Unit – IV:

Introduction – defining and opening a file – closing a file – input/ output operation on file- error handling – random access to files- command line arguments.

Unit – V:

Development of program and flow chart for the following:

1. Celsius to Fahrenheit
2. Fahrenheit to Celsius
3. Sorting a set of numbers in ascending and descending order
4. Young's modulus by uniform bending method
5. Young's modulus by non uniform bending method

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Understand the basic the fundamentals of C programming.	1
CO-2	Choose the loops and decision making statements to solve the problem.	1
CO-3	Implement different Operations on arrays.	5
CO-4	Implement file Operations in C programming for a given application.	8

Books for Study:

1. Programming in Basics - E. Balagurusamy-II Edition, Tata McGraw-Hill Publishing Company, 2001.
2. Programming in ANSI C - E. Balagurusamy- II Edition, Tata McGraw-Hill Publishing Company, 2006.

Books for References:

1. Programming with C –Byron J. Gottfried, 2006.
2. The Spirit of C- Herri Mullish and Hubert Kooper, 2000.

Department of Physics

B.Sc. Physics

NMEC - PHYSICS IN EVERYDAY LIFE

Semester: III or IV **Credits: 2**

Course Code: 18UxPHN01 **Hours/week: 2**

Programme: Any UG Degree

Objectives:

1. To understand the basic knowledge of physics.
2. To study the properties of matter for everyday life.

Unit - I: Mechanics

Motion, Force and Newton's laws - Momentum - Projectile and Circular motions.

Satellites: Gravitation - Planetary motion and Earth Satellites - Communication satellites - Work, power and Energy.

Unit - II: Properties of Matter

Three states of matter - Binding forces - Fluid Pressure and Thrust - Applications of fluid pressure - Pascal law - Archimedes principle - Capillary action - Bernoulli's Principle - Viscosity.

Unit - III: Heat and Sound

Measurement of heat and temperature - Clinical Thermometer - Heat transfer - Thermo flask - Change of state - Effect of pressure on boiling point and melting point - Sound and music - Reverberation - Acoustics of buildings.

Unit - IV: Electricity and Magnetism

Coulomb's law - Action of points, lightening arrester - Ohm's law - electric power - Electromagnetic Induction - Faraday's Law - Lenz Law – Transformers- Mariner's Compass.

Unit - V: Optical Devices

Light - Optical instruments - Camera - Telescope - Microscope – Projector.

Nuclear Fission and Fusion: Nuclear energy - Fission and Fusion - Atom Bomb and Hydrogen Bomb.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Learnt about the topics of properties of matter, heat, Electricity and Magnetism.	1
CO-2	Acquire the knowledge of nuclear fission and fusion Process.	1
CO-3	Got awareness about the Optical devices like camera, Telescope, Microscope and Projector	5

Books for Study:

1. Advanced level Physics, Nelkon & Parker-published by Longman international Education, 1995.
2. Electricity and Magnetism, Brijlal and Subramaniam, S Chand & Co., New Delhi, 2005.

Books for References:

1. University Physics – Sears and Zemansky.

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NMEC - ENERGY PHYSICS

Semester: III or IV **Credits: 2**

Course Code: 18UxPHN02 **Hours/week: 2**

Programme: Any UG Degree

Objectives:

1. To understand the knowledge of energy sources.
2. To acquire knowledge of solar energy and its applications.

Unit - I: Introduction to Solar Energy

Energy sources - Its availability- Renewable energy sources and Prospects - Solar constant - Solar radiation at the earth's surface - Solar local Time - Solar Radiation data.

Unit - II: Wind Energy

Basic principles of wind energy conversion - wind data and energy estimation - Basic components of a WECS (Wind Energy Conversion System) - Generator Control - Load Control - application of wind energy.

Unit - III: Bio - Mass Energy

Biomass energy - Biomass Conversion technologies - Photosynthesis - classification of Biogas plants -advantage and disadvantage - Methods for obtaining energy from biomass.

Unit - IV: Energy Storage and Geothermal Energy

Solar energy storage - High temperature battery - Sodium Sulphur cell - Advantages of Batteries - Hydrogen Storage - Hydro thermal resources- Advantages and disadvantage - its application.

Unit - V: Application of Solar Energy

Solar water heating - Solar Photo Voltaic -Agricultural and industrial process heat -Solar distillation - Solar cooking - Solar green house.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Know the renewable energy sources and solar radiations.	1
CO-2	Gain the knowledge about principle and operation of solar cells.	1
CO-3	Learn the different technologies of converting the solar energy and learn the different applications.	3
CO-4	Understand the principles of wind energy.	6
CO-5	Understand the concept of biomass energy and their classification.	6

Books for study:

1. Non - Conventional energy Sources - G. D. Rai, Khanna Publication,2005.
2. Solar Energy - G.N.Tiwari, Marisa publishing house private Ltd., 2008.

Books for References:

Solar Energy - S.P.Sulatne, TMH Second edition, 1998.

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B.Sc. Physics

ALLIED PHYSICS COURSE - ALLIED PHYSICS -I

Semester: I/III **Credits: 3**

Code: 18UxPHA01 **Hours/week: 5**

Programme: B.Sc. Mathematics

Objectives:

1. To study the properties of matter and viscosity
2. To study the basic aspects of mechanics, sound and heat.
3. To study the nature of optics, laser and electricity.

Unit-I: Properties of Matter

Newton's law of gravitation- Determination of gravitational constant by Boy's method- Bending of beams-Expression for bending moment-Young's modulus by uniform and non-uniform bending - Torsion in wire - Couple per unit twist - Torsion Pendulum - Co-efficient of viscosity - Poiseuille's formula - Comparison of viscosity - Surface tension and interfacial surface tension using drop weight method.

Unit-II: Mechanics

Simple Harmonic Motion-Composition of two simple harmonic motion at right angles to each other - Sonometer-determination of ac frequency of a tuning fork using sonometer – Projectile - Range up and down an inclined plane - Impulse and impact-Laws of impact – Coefficient of restitution-Direct impact between two Spheres.

Unit-III: Heat

Definition of Cp and Cv - Vander Waal's equation of state - derivation of critical constants - Thermal conductivity of a bad conductor - Lee's disc method- Joule-Thomson effect-Porous plug experiment-Theory-Relation between inversion temperature and Boyle temperature-Liquefaction of Helium.

Unit-IV: Optics and Laser

Geometrical Optics - Small angled prism-Formation of two thin prisms to produce dispersion without deviation and deviation without dispersion- Air wedge - Thickness of a wire – Laser- Characteristics of Laser – Population Inversion - Pumping process – Ruby Laser – He- Ne Laser – Applications of laser.

Unit-V: Electricity

Carry foster bridge- Theory - measurement of resistance – Potentiometer - Comparison of E.M.F of two cells by potentiometer - Theory of moving coil Ballistic Galvanometer -Determination of current and voltage sensitivities – Comparison of capacitances.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Understand the knowledge of gravity.	1
CO-2	Again the knowledge about behavior of simple harmonic motion	2
CO-3	Understand the conductivity of good conductor and bad conductor.	7
CO-4	Know how we compare the E.M.F of the different cells'	7
CO-5	Understand the optical instruments	10

Books for Study:

1. Properties of matter -R. Murugesan, S.Chand & Co, 2005.
2. Mechanics and mathematical methods- R. Murugesan, S.Chand & Co, 2006.
3. Heat and Thermodynamics -Brijlal and Subramaniam, S.Chand & Co, 2006.
4. Optics and Spectroscopy- R.Murugesan, S.Chand & Co, 2006.
5. Electricity and Magnetism- R.Murugesan, S.Chand & Co, 2006.

Books for References:

1. Heat and Thermodynamics –D.S.Mathur, S.Chand & Co, 2008.
2. Fundamentals of Optics- M.G. Raj, Anmol Publications Pvt.Ltd., New Delhi, 1996.
3. Modern Physics, R.Murugesan, S.Chand & Co., Twelfth Edition, 2007.

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ALLIED PHYSICS COURSE - ALLIED PHYSICS -II

Semester: II/IV **Credits: 3**

Code: 18UxPHA02 **Hours/week: 5**

Programme: B.Sc. Mathematics

Objectives:

1. To study the structure of the atom, nucleus.
2. To study the principle of solar power generation and applications.
3. To understand the concepts of basic and digital electronics.

Unit-I: Atomic Physics

Vector atom model-Spatial quantization - Spinning electron - Quantum numbers associated with vector atom model - Coupling Schemes - The Pauli Exclusion principle- example for electron configuration – Stern and Gerlach experiment.

Unit-II: Nuclear Physics

Nuclear models - Liquid drop model - Semi empirical mass formula - Shell models and its evidences - Nuclear radiation detectors - Ionization chamber - G.M counter-Particle accelerator - Synchrocyclotron - Betatron.

Unit-III: Solid State Physics & Solar Physics

Crystal – Seven types of crystal system- Bragg's law – Experimental method in X-ray diffraction – Powder photograph method - Bonding in crystal - Covalent, Ionic, Metallic, Hydrogen and Vanderwaals bonds. Solar Energy - Solar Constant – Measurement of Solar Radiation by Pyroheliometer – Applications of solar energy - Solar electric power generation.

Unit-IV: Basic Electronics

PN Junction diode - Zener diode - Voltage regulator - LED - Connection and characteristics of Transistor (common emitter only) – Oscillators - Hartley oscillator - Colpitt's oscillator - Operational amplifiers - Adder - Subtractor- Differentiator and Integrator.

Unit-V: Digital Electronics

Binary, Octal, Hexadecimal, Decimal and their conversions - Basic logic gates and their truth tables - Laws of Boolean algebra - De Morgan's theorems - NAND\NOR as universal building blocks - Half adder and Full adder - Half and Full Subtractor.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed
CO-1	Study the theory and application of prism and laser.	2
CO-2	Understand the evolution of different atomic structure and properties.	4
CO-3	Ability to analysis the different types of crystals systems	1
CO-4	Understand the basic properties of nuclei and different nuclear models.	1
CO-5	Distinguish the knowledge of basic of solar energy and applications.	5

Books for study:

1. Modern Physics, R.Murugesan, S.Chand & Co., Twelfth Edition, 2007.
2. Non - Conventional energy Sources - G. D. Rai, Khanna Publication, 2005.
3. Principles of Electronics – V.K. Metha, S.Chand & Co., 2007.
4. Digital Principles and application, Malvino & Leach- Tata Mc Graw Hill Publishing Company Ltd, New Delhi, 2006.

Books for References:

1. Atomic Physics - J.B.Rajam, S.Chand & Co., 2004.
2. Solar Energy - M.P.Agarwal, , S.Chand & Co.,
3. Basic Electronics (Solid state), B.L. Theraja, S. Chand & Co., 2005.
4. Digital Electronics- A.P.Godse, Technical Publisher, Pune,2011.

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B.Sc. Physics

ALLIED PHYSICS PRACTICAL -I

(Any fifteen only)

Semester: II or IV **credits: 2**

Course Code: 18UxPHAP01 **Hours/week: 3**

Programme: B.Sc. Mathematics

1. Young's Modulus – Non uniform bending – Using optical lever – By Scale and Telescope
2. Young's Modulus – Uniform bending – Pin and Microscope
3. Rigidity Modulus by Torsion pendulum (without mass)
4. Rigidity Modulus by Static torsion method.
5. Surface tension and interfacial surface tension of a given liquid by Drop weight method
6. Thermal conductivity of a bad conductor using Lee's disc method.
7. Frequency of fork using Sonometer.
8. A.C Frequency of fork using Sonometer (Electromagnet).
9. Thickness of wire of given wire by Air Wedge method.
10. Radius of curvature of a given lens by Newton's rings.
11. Dispersive power of a given prism Spectrometer (Angle of the prism given).
12. Field along the axis of a coil - B_H Compass box (Deflection magnetometer)
13. Viscosity of a highly viscose liquid by stokes method.
14. Resistivity of a material of a given wire by Meter Bridge.
15. Comparison of E.M.F of two cells by potentiometer.
16. Verification of Demorgan's theorem
17. Low range power pack – Using two diodes.
18. Characteristics of Zener diode.
19. Voltage regulator of Zener diode.
20. Half adder and Full adder by logic gates.

Books for References:

1. A text book of Practical Physics –M.N.Srinivasan, S.Balasubramanian, R.Ranganathan,S.Chand & Co., New Delhi, 2004.
2. Practical Physics – Department of Physics, St.Joseph's College, Trichy, 2005.

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B.Sc. Physics

ALLIED PHYSICS COURSE - ALLIED PHYSICS -I

Semester: I/III **Credits: 3**

Course Code: 18UxPHA03 **Hours/week: 5**

Programme: B.Sc. Chemistry

Objectives:

1. To study the properties of matter and viscosity
2. To study the basic aspects of mechanics, sound and heat.
3. To study the nature of optics and electricity.

Unit-I: Properties of Matter

Newton's law of gravitation- Determination of gravitational constant by Boy's method- Bending of beams-Expression for bending moment-Young's modulus by uniform and non-uniform bending - Torsion in wire - Couple per unit twist - Torsion Pendulum - Co-efficient of viscosity - Poiseuille's formula - Comparison of viscosity - Surface tension and interfacial surface tension using drop weight method.

Unit-II: Sound and Mechanics

Simple Harmonic Motion-Composition of two simple harmonic motion at right angles to each other - Sonometer-determination of ac frequency of a tuning fork using sonometer – Projectile - Range up and down an inclined plane - Impulse and impact-Laws of impact coefficient of restitution-Direct impact between two Spheres.

Unit-III: Heat

Definition of Cp and Cv - Vander Waal's equation of state - derivation of critical constants - Thermal conductivity of a bad conductor - Lee's disc method- Joule-Thomson effect-Porous plug experiment-Theory-Relation between inversion temperature and Boyle temperature-Liquefaction of Helium.

Unit-IV: Optics

Small angled prism-Formation of two thin prisms to produce dispersion without deviation and deviation without dispersion- Air wedge - Thickness of a wire - Jamin's interferometers - Rayleigh's interferometer - Specific rotary power and its determination using Laurent's half shade polarimeter.

Unit-V: Electricity

Carry foster bridge- Theory - measurement of resistance – Potentiometer - Comparison of E.M.F of two cells by potentiometer - Theory of moving coil Ballistic Galvanometer-Determination of current and voltage sensitivities – Comparison of capacitances.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Understand the knowledge of gravity.	1
CO-2	Again the knowledge about behavior of simple harmonic motion	2
CO-3	Understand the conductivity of good conductor and bad conductor.	7
CO-4	Know how we compare the E.M.F of the different cells'	7
CO-5	Understand the optical instruments	10

Books for Study:

1. Mechanics and mathematical methods- R. Murugesan, S.Chand & Co, 2006.
2. Properties of matter -R.Murugesan, S.Chand & Co, 2005.
3. Heat and Thermodynamics -Brijlal and Subramaniam, S.Chand & Co, 2006.
4. Optics and Spectroscopy- R.Murugesan, S.Chand & Co, 2006.
5. Electricity and Magnetism- R.Murugesan, S.Chand & Co, 2006.

Books for References:

1. Heat and Thermodynamics –D.S.Mathur, S.Chand & Co, 2008.
2. Fundamentals of Optics- M.G.Raj , Anmol Publications Pvt.Ltd., New Delhi, 1996.

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ALLIED PHYSICS COURSE - ALLIED PHYSICS -II

Semester: II/IV **Credits: 3**

Course Code: 18UxPHA04 **Hours/week: 5**

Programme: B.Sc. Chemistry

Objectives:

1. To study the structure of the atom, nucleus.
2. To study the principle of laser and spectroscopy.
3. To understand the concepts of basic of solar energy and applications.

Unit-I: Atomic Physics

Vector atom model-Spatial quantization - Spinning electron - Quantum numbers associated with vector atom model - Coupling Schemes - The Pauli Exclusion principle- example for electron configuration –Stern and Gerlach experiment. Bonding in crystal-Types of bonding.

Unit-II: Nuclear Physics

Nuclear models-Liquid drop model-Semi empirical mass formula - Shell models and its evidences - Nuclear radiation detectors - Ionization chamber- G.M counter- Particle accelerator - Synchrocyclotron - Betatron.

Unit-III: Solid State Physics

Crystal – Seven types of crystal system- Bragg's law – Experimental method in X-ray diffraction – Powder photograph method and Rotating crystal method - Bonding in crystal - Covalent, Ionic, Metallic, Hydrogen and Vanderwaals bonds .

Unit-IV: Laser and Spectroscopy

LASER-Characteristics of laser - Population inversion - Optical pumping -Ruby laser - Applications of laser - Molecular Spectra - Theory of pure rotational spectrum -Origin of vibration –Rotation spectrum-Electronic spectrum-Basic theory of NMR and ESR.

Unit-V: Solar Physics

Solar Energy - Solar Constant – Measurement of Solar Radiation by Pyroheliometer & Pyranometer – Applications of solar energy - Solar electric power generation – Solar cooking – Solar Water heating.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Study the theory and application of prism and laser.	2
CO-2	Understand the evolution of different atomic structure and properties.	4
CO-3	Ability to analysis the different types of crystals systems	1
CO-4	Understand the basic properties of nuclei and different nuclear models.	1
CO-5	Distinguish the knowledge of basic of solar energy and applications.	5

Books for study:

1. Modern Physics, R.Murugesan, S.Chand & Co., Twelfth Edition, 2007.
2. Non - Conventional energy Sources - G. D. Rai, Khanna Publication, 2005.
3. Fundamentals of Molecular Spectroscopy, Banwell, Tata Mcgraw Hill, New Delhi, 2005.

Books for References:

1. Atomic Physics - J.B.Rajam, S.Chand & Co., 2004.
2. Nuclear Physics - D.C.Tayal, Himalaya Publishing House, 2011.
3. Solid State physics – Gupta, Kumar & Sharma - K.Nath & Co., 2004.
4. Elements of Spectroscopy- Gupta, Kumar& Sharma – Prakati prakasan publications, 2006.
5. Solar Energy - M.P.Agarwal, , S.Chand & Co.,

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ALLIED PHYSICS PRACTICAL -I

(Any fifteen only)

Semester: II or IV **credits: 2**

Course Code: 18UxPHAP02 **Hours/week: 3**

Programme: B.Sc.Chemistry

1. Young's Modulus – Non uniform bending – Using optical lever – By Scale and Telescope
2. Young's Modulus – Uniform bending – Pin and Microscope
3. Rigidity Modulus by Torsion pendulum (without mass)
4. Rigidity Modulus by Static torsion method.
5. Surface tension and interfacial surface tension of a given liquid by Drop weight method
6. Surface tension of a given liquid by Capillary rise method.
7. Thermal conductivity of a bad conductor using Lee's disc method.
8. Frequency of fork using Sonometer.
9. A.C Frequency of fork using Sonometer (Electromagnet).
10. Thickness of wire of given wire by Air Wedge method.
11. Radius of curvature of a given lens by Newton's rings.
12. Dispersive power of a given prism Spectrometer (Angle of the prism given).
13. Wavelength of a spectrum using Spectrometer by Grating - Normal incidence method.
14. Field along the axis of a coil - B_H Compass box (Deflection magnetometer)
15. Viscosity of a highly viscose liquid by stokes method.
16. Viscosity of liquid - Capillary flow - Graduated burette.
17. Resistivity of a material of a given wire by Meter Bridge.
18. Specific resistance of the material of the given coil by Carey - Foster's bridge.
19. Comparison of E.M.F of two cells by potentiometer.
20. Focal length of a long convex & concave lens.

Books for References:

1. A text book of Practical Physics –M.N.Srinivasan, S.Balasubramanian, R.Ranganathan,S.Chand & Co., New Delhi, 2004.
2. Practical Physics – Department of Physics, St.Joseph's College, Trichy, 2005.

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B.Sc. Physics

ALLIED PHYSICS COURSE - ALLIED PHYSICS -I

Semester: I / III **Credits: 3**

Course Code: 18UxPHA05 **Hours/week: 5**

Programme: B.Sc. Ele. & Com., and Computer Science

Objectives:

1. To study the properties of Atomic and nuclear Physics.
2. To study the basic aspects of Electricity.
3. To understand the concepts of basic of solar energy and applications.

Unit – I: Atomic Physics

Structure of atom – Rutherford experiments on alpha particle scattering – Bohr atom model (Up to total energy calculation only) - Effect of nuclear motion on atomic spectra – Vector atom model - Quantum number associated with vector atom model- coupling schemes- Pauli exclusion principle – example for electronic configuration.

Unit-II: Nuclear Physics

Classification of nuclei- General properties of nucleus (Size, mass, density, charge, spin and resultant angular momentum)- Binding energy- Nuclear forces- Liquid drop model- Semi empirical mass formula- ionization chamber- G.M. Counter- synchrocyclotron.

Unit-III: Electricity

Carry foster bridge - Theory - measurement of resistance – Potentiometer - Comparison of E.M.F of two cells by potentiometer - Theory of moving coil Ballistic Galvanometer -Determination of current and voltage sensitivities – Comparison of capacitances.

Unit-IV: Solid state Physics

Crystal – Seven types of crystal system- Bragg's law – Experimental method in X-ray diffraction – Powder photograph method and Rotating crystal method - Bonding in crystal - Covalent, Ionic, Metallic, Hydrogen and Vanderwaals bonds.

Unit-V: Solar Physics

Solar Energy - Solar Constant – Measurement of Solar Radiation by Pyroheliometer & Pyranometer – Applications of solar energy - Solar electric power generation – Solar cooking – Solar Water heating.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Understand the evolution of different atomic structure and properties.	2
CO-2	Understand the basic properties of nuclei and different nuclear models.	4
CO-3	Ability to analysis the different types of crystals systems	1
CO-4	Distinguish the knowledge of basic of solar energy and applications.	5

Books for Study:

1. Principles of Electronics- V.K.Mehta, Rohit Mehta,S.Chand&Co., New delhi.
2. Digital Electronics- V.K. Puri, MC Graw Hill Education (India) Private Ltd., New Delhi.
3. Fundamentals of Microprocessers and Microcontrollers- B. RAM, Dhanpat Rai Publications (P) Ltd., New Delhi.

Books for Reference:

1. Basic Electronics (Solid State) – B.L. Theraja – Sultan Chand & Co., New Delhi.
2. Digital Principles and Applications –Malvino & Leach-Tata Mc Graw Hill Publishing
3. Microprocessor Architecture Programming and Applications – Gaonkar, TMH, 2000.

Department of Physics

B.Sc. Physics

ALLIED PHYSICS COURSE - ALLIED PHYSICS -II

Semester: II/IV **Credits: 3**

Course Code: 18UxPHA06 **Hours/week: 5**

Programme: B.Sc. Ele. & Com., and Computer Science

Objectives:

1. To study the semiconductor and Integrated circuits.
2. To study the basic aspects of Modulation and Demodulation.
3. To understand the concepts of basic of digital electronics and microprocessor.

Unit - I: Semiconductor Physics

Semiconductor - Commonly used semiconductor - Energy band description for semiconductor- Intrinsic semiconductor, Extrinsic semiconductor - pn junction - Properties of pn junction - VI characteristics - Semiconductor diode - Zener diode - light emitting diode - Transistor - Connection and characteristics of common emitter mode.

Unit - II: Integrated Circuits

Integrated Circuit – IC classifications – .Making of Monolithic IC – Fabrication of components on Monolithic IC – Diodes – Transistors – Resistors – Capacitors – Operational Amplifier theory – Inverter – Non inverter - Adder – Subtractor – Differentiator – Integrator.

Unit - III: Modulation and Demodulation

Modulation - Radio broadcasting, Transmission and reception-Types of modulation-Amplitude modulation - Frequency modulation- Theory - Comparisons of FM and AM. Demodulation - AM diode detector - AM Radio receiver - Straight radio receiver - Superhetrodyne receiver and its Stages - FM Receiver- Difference between FM and AM Receiver.

Unit – IV: Digital Electronics

Number system and their conversions - binary addition, multiplication and division -1's and 2's compliment- Boolean algebra – Logic Gates OR, AND, NOT, NOR, NAND, EX-OR and EX-NOR - Demorgan's theorem – Sum of Product and Product of

sum - Karnaugh Map (Up to Four variable map) and its Simplification of boolean expression - Half Adder and Full adder - Half subtractor and Full Subtractor

Unit - V: Microprocessor

Word length of a microprocessor - Evolution of microprocessor – Architecture of Intel 8085 - ALU – Timing and Control unit - Registers - Data bus and address bus – Pin configuration - Intel 8085 instruction - Opcode and operands.

Course Outcomes:

CO No.	Upon completion of this course, students will be able to	PSOs addressed.
CO-1	Apply the concept of Semiconductor physics	1
CO-2	Gain knowledge in Integrated Circuits and their fabrication methods.	1
CO-3	Use of different modulation and demodulation techniques used in analog communication.	1
CO-4	Gain elaborate view of Boolean laws and theorems and explain the different logic gates.	1
CO-5	Explain architecture of 8 bit microprocessor and its operation within the area of manufacturing performance.	2

Books for Study:

1. Principles of Electronics- V.K.Mehta, Rohit Mehta,S.Chand&Co., New delhi.
2. Digital Electronics- V.K. Puri, MC Graw Hill Education (India) Private Ltd., New Delhi.
3. Fundamentals of Microprocessers and Microcontrollers- B. RAM, Dhanpat Rai Publications (P) Ltd., New Delhi.

Books for Reference:

1. Basic Electronics (Solid State) – B.L. Theraja – Sultan Chand & Co., New Delhi.
2. Digital Principles and Applications –Malvino & Leach-Tata Mc Graw Hill Publishing
3. Microprocessor Architecture Programming and Applications – Gaonkar, TMH, 2000.

Department of Physics

B.Sc. Physics

ALLIED PHYSICS PRACTICAL -I

(Any fifteen only)

Semester: II or IV **credits: 2**

Course Code: 18UxPHAP03 **Hours/week: 3**

Programme: B.Sc. Ele. & Com., and Computer Science

1. Semiconductor diode characteristics.
2. Zener diode characteristics.
3. LED characteristics.
4. Transistor characteristics - Common Emitter configuration.
5. Zener controlled regulated power supply.
6. Potentiometer measurement of current.
7. Potentiometer measurement of Resistance.
8. Band gap energy of Thermister.
9. Series resonance circuit.
10. Single stage amplifier.
11. Operation amplifier – Addition & Subtraction.
12. Logic gates OR, AND, NOT.
13. Universal gate NAND.
14. Universal gate NOR.
15. Demorgan's theorem
16. Hall Adder and Full Adder
17. Sum of Product
18. Product of Sum
19. Simplification of given Boolean expression using K-Map.
20. Comparison of E.M.F of two cells by potentiometer

Books for References:

1. A text book of Practical Physics –M.N.Srinivasan, S.Balasubramanian, R.Ranganathan,S.Chand & Co., New Delhi, 2004.
2. Practical Physics – Department of Physics, St.Joseph's College, Trichy, 2005.

Selvamm Arts and Science College (Autonomous), Namakkal

Department of Physical Education

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Regulations and syllabus

Choice Based Credit System

CBCS pattern - semester system

Regulations and Syllabus

From the Academic Year **2018 – 2019**

Selvamm Arts and Science College (Autonomous), Namakkal

Department of Physical Education

B.Sc Physical Education

Vision:

To be a centre of excellence in the field, sports and games of Physical Education.

Mission:

To provide coaching and sports knowledge based and application oriented development activities

Programme Outcomes (POs)

PO 1: Communicate effectively - well versed in communicating both in English (as medium of instruction) and Tamil (mother's tongue), distinguish between professional and non-professional dialogues. Develop LSRW (Listening, Speaking, Reading, and Writing) skills with advanced technologies.

PO 2: Environment Concern - Follow RRRR (Reduce, Reuse, Recycle, Refuse) and develop affinity towards environment and practice save Nature and Water.

PO 3: Ethical and Healthy Practice - Adhere to values in day to day life, practice yoga and other physical exercises, hence, develop self - respect and self-esteem, have strong integrity.

PO 4: Social Consciousness - Understand the rural situations through ERP (Empowering Rural People), and develop social consciousness, solve the issues through interaction, become mediator/ moderator between government and people, and become true citizen of our Nation.

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PO 5: Subject Specialist - Acquaint their own subject and integrate with other disciplines (CBCS) with advanced technologies and become a Regional, National and Global competitor

PO 6: Role Model - Develop organizational, intellectual and personal skills through active Sports and Games and become role model of their society

B.Sc Physical Education (2018 – 2019 Onwards)

Sem	Paper Name	Hours	Credit	Mark		
				Int	Ext	Total
I	Tamil – I	5	4	25	75	100
	English – I	5	4	25	75	100
	Foundation and History of Physical Education	6	4	25	75	100
	Anatomy and Physiology	6	5	25	75	100
	Methods in Physical Education	6	4	25	75	100
	Yoga & Practice	2	2	25	75	100
		30	**23**			**600**
II	Tamil – II	5	4	25	75	100
	English – II	5	4	25	75	100
	Kinesiology and Bio-mechanics	5	4	25	75	100
	Health Education and Nutrition	5	4	40	60	100
	Organization and Administration in Physical Education.	5	4	40	60	100
	Practical-I Major Games -I	3	2	25	75	100

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	Environmental Studies	1	1	25	75	100
	Value for life	1	1	25	75	100
		30	**24**			**800**
III	Tamil – III	5	4	25	75	100
	English – III	5	4	25	75	100
	Exercise Physiology.	6	4	25	75	100
	Theory of Track and Field - I	5	4	25	75	100
	Adapted Physical Education	5	4	25	75	100
	Officiating And Coaching in Track and Field	2	2	25	75	100
	Health and Nutrition	2	2	25	75	100
		30	**24**			**700**
IV	Tamil – IV	5	4	25	75	100
	English – IV	5	4	25	75	100
	Practical – I Track and Field -I	6	3	40	60	100
	Applied Computer programme	5	4	25	75	100
	Safety and First Aid.	5	4	40	60	100
	Officiating And Coaching in Major Games	2	2	25	75	100
	Major Games	2	2	25	75	100
		30	**23**			**700**

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V	Elementary Statistics	5	4	25	75	100
	Theory of Major Games	5	4	25	75	100
	Theory of Track and Field -II	5	4	25	75	100
	Scientific Principles of Sports Training	5	4	25	75	100
	Test, Measurement and Evaluation	5	4	25	75	100
	Gymnastics	5	4	25	75	100
		30	**24**			**600**
VI	Care and Prevention of Sports Injuries	5	4	25	75	100
	Sports Sociology and Psychology	5	4	25	75	100
	Fitness and Wellness	5	4	25	75	100
	Recreation, Camping and Supervising	5	4	25	75	100
	Practical – III Major Games – II	5	2	40	60	100
	Practical – IV Track and Field-II	5	2	40	60	100
	Extension Activity		2	25	75	100
		30	**22**			**600**
	Total	**180**	**140**			**4000**

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B.Sc Physical Education

Degree of Bachelor of Science (Physical Education)

Course Structure (2018-2019)

Semester – I

Part	Paper Code	Study Components	Title of the Paper	Hours/ Week	Credit	Marks
I	18U1FTA01	Languages	Tamil – I	5	4	100
II	18U1FEN01	Languages	English – I	5	4	100
III	18U1PE01	Core -I	Foundation & History of Physical Education	6	4	100
	18U1PE02	Core-III	Anatomy and Physiology	6	5	100
	18U1PE03	Core -II	Methods in Physical Education	6	4	100
IV	18U1VE01	Value Education	Yoga & Practice	2	1	100
			Total	**30**	**22**	**600**

Semester – II

Part	Paper Code	Study Components	Title of the Paper	Hours/ Week	Credit	Marks
I	18U2FTA02	Languages	Tamil – II	5	4	100
II	18U2FEN02	Languages	English – II	5	4	100
III	18U2PEA01	Allied-I	Health Education and Nutrition	5	4	100
	18U2PEA02	Allied-II	Kinesiology and Bio-mechanics	5	4	100
	18U2PE04	Core-IV	Organization and Administration in Physical Education.	5	4	100
	18U2PEP01	Core Practical-I	Practical-I Major Games -I	3	2	100
IV	18U2ES01	Environmental Studies	Environmental Studies	1	1	100
	18U2VE02		Value for life	1	1	100
			Total	**30**	**24**	**800**

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Semester – III

Part	Paper Code	Study Components	Title of the Paper	Hours /Week	Credit	Marks
I	18U3FTA03	Languages	Tamil – III	5	4	100
II	18U3FEN03	Languages	English – III	5	4	100
III	18U3PE05	Core -V	Exercise Physiology.	6	4	100
	18U3PE06	Core -VI	Theory of Track and Field - I	5	4	100
	18U3PEA03	Allied-III	Adapted Physical Education	5	4	100
IV	18U3PES01	Sbec-I	Officiating And Coaching in Track and Field	2	2	100
	18U3PEN01	Nmec-I	Health and Nutrition	2	2	100
			Total	**30**	**24**	**700**

Semester – IV

Part	Paper Code	Study Components	Title of the Paper	Hours /Week	Credit	Marks
I	18U4FTA04	Languages	Tamil – IV	5	4	100
II	18U4FEN04	Languages	English – IV	5	4	100
III	18U4PEP02	Core Practical-II	Practical – I Track and Field -I	6	3	100
	18U4CSA04	Allied-IV	Applied Computer programme	5	4	100
	18U4PEE01	Elective Course-I	Safety and First Aid.	5	4	100
IV	18U4PES02	Sbec-II	Officiating And Coaching in Major Games	2	2	100
	18U4PEN02	Nmec-II	Major Games	2	2	100
			Total	**30**	**23**	**700**

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Semester – V

Part	Paper Code	Study Components	Title of the Paper	Hours /Week	Credit	Marks
III	18U5PE07	Core –VII	Elementary Statistics	5	4	100
	18U5PE08	Core –VIII	Theory of Major Games-II	5	4	100
	18U5PE09	Core –IX	Track and Field -II	5	4	100
	18U5PE10	Core –X	Scientific Principles of Sports Training	5	4	100
	18U5PE11	Core –XI	Test, Measurement and Evaluation	5	4	100
	18U5PEE02	Elective course-II	Gymnastics	5	4	100
			Total	**30**	**24**	**600**

Semester – VI

Part	Paper Code	Study Components	Title of the Paper	Hours /Week	Credit	Marks
III	18U6PE12	Core -XII	Care and Prevention of Sports Injuries	5	4	100
	18U6PE13	Core –XIII	Sports Sociology and Psychology	5	4	100
	18U6PE14	Core –XIV	Fitness and Wellness	5	4	100
	18U6PE15	Core –XV	Recreation, Camping and Supervising	5	4	100
	18U6PEP03	Core – Practical – III	Practical – III Major Games – II	5	2	100
	18U6PEP04	Core - Practical – IV	Practical – IV Track and Field-II	5	2	100
V			Extension Activity		2	100
			Total	30	22	600

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Programme Specific Outcomes (PSOs)

PSO1	Fundamental skills, knowledge, etiquette and used in the practice and performance of competition activities
PSO2	Adapt and improve activity-specific skills in a variety of environments; e.g., camping, canoeing, survival skills
PSO3	Application of Basic Skills, adapt and improve activity-specific Skills in a variety of environments.
PSO4	Adapt and improve activity-specific skills in a variety of games and track and field
PSO5	Develop and further refine activity-specific skills in a variety of games rules and regulations
PSO6	Recommend a choice of activity-specific skills in pursuing lifelong individual activities
PSO7	Demonstrate exercises that will develop strength and cardiovascular fitness establish water fitness programs.
PSO8	Students will demonstrate basics of nutrition as applied to sports basics of nutrition and fitness as applied to weight management
PSO9	Lifestyle choices and how they impact overall health and Wellness.
PSO10	Basic principles of health and wellness to develop an informed, personal approach to mental and physical health

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B.Sc Physical Education

Semester – I **Hours/week-6**

Code-18U1PE01 **Credits-4**

Foundation and History of Physical Education

Objective: To Expose Learners in the world History of Physical Education

Unit - I

Meaning and Definition - Education, Physical Education - Aims and Objectives of Physical education – Scope of Physical education- Need and importance of Physical Education – Physical Training and Physical Culture.

Unit - II

Muscle tone - Athletic heart - Vital capacity - Evolution (Periods of growth and development) - Body mechanics - Age Classification - Differences between Boys and Girls during Adolescence – Body types.

Unit - III

History of Physical Education in Sparta and Athens – Olympics Games – Ancient and Modern Olympics – Olympic flag – Torch - Motto – Olympic Rings - National Integration through Physical Education and Sports.

Unit - VI

Physical Education in India – Epic age, Buddhist age - y.m.c.a and its contribution - Recent development –, Sai- objectives and schemes Ioa - Objectives – Sdat- Structure and schemes

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Unit - V

National and International Trophies – Cricket – Hockey – Football – Tennis – Rds and Bds - Awards and Honors – Arjuna award - Dronacharya award - Rajiv Gandi Khel Retna award - Abulkalam Azad award.

Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Regarding the advantages and disadvantages of a career in the sports related fields.	1
CO-2	The allied occupations of health and recreation.	7
CO-3	Identification of the important changes that have taken place in our society.	10
CO-4	Utilize physical activity as a tool to manage stress.	2
CO-5	Determine factors involved with development, fitness levels and training strategies.	3

Text Book:

1. Kamiesh M.L. and M.S Sargral, Principles and History of Physical Education, Prakash Brothers Educational Publishers, 1981.

Reference books:

1. Bucher, Charles A. Foundation of Physical Education, St.Louis: The C.V. Mosby Company, 1983.

2. Oberteuffer, Delbert, Physical Education New York: Herpor and Brothers Publishers, 1974

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B.Sc Physical Education

Semester – I **Hours/week-6**

Code- 18U1PE02 **Credits-5**

Anatomy and Physiology

Objective: To facilitate knowledge on the structure and functions of Human Body

Unit-I

Introduction – Meaning of Anatomy and Physiology – Cell – Structure – Functions – Tissues – Types – Epithelial Tissue – Muscular Tissue - Structure and Functions.

Unit-II

Classification of bones – Arches of foot – Sex differences in the skeleton — Classification of Skeletal Joints- Joints Structure of Knee Joint - Shoulder Joint - Elbow Joint - Wrist Joint.

Unit-III

Cardio vascular system — Structure and functions - Heart – Pulse rate – Blood Pressure – Systolic, Diastolic - Urinary system - Structure and functions of Kidney – Excretory system -Structure and functions of skin.

Unit-IV

Respiratory System – Structure and functions -Lungs — Mechanism of respiration – Digestive system - Stomach- Liver – Pancreas-Intestine.

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Unit-V

Nervous System – Structure and functions of neuron – Functions of Spinal card –Cerebrum - Cerebellum

Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Explain interrelationships among molecular, cellular, tissue, and organ functions in each system.	10
CO-2	Apply concepts and knowledge of the general terminology, cell structure and function.	9
CO-3	The histology, gross anatomy, and physiology related to the integumentary, skeletal.	8
CO-4	The Muscular and nervous systems to novel technical and/or clinical scenarios.	7

Text book:

1. Pearce Evelyn, Anatomy and Physiology for Nurses, Jaypee. Brothers Medical Publishers, New Delhi, 1997.

Reference Books:

1. Chaurasia B.D. Human Anatomy, CBS Publishers, 1982.
2. Chatterjee Chandicharan, Human Physiology, Medical Allied Agency Volume I and II, Calcutta, 1980.
3. Wilson Katheleen J.W. Foundations of Anatomy and Physiology, English language book society 1985.

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Semester – I **Hours/week-6**
Code- 18U1PE03 **Credit-4**

Methods in Physical Education

Objective: To Enhance the Understanding Ability of Students in Teaching Learning Process.

Unit – I

Method - Meaning - Factors influencing method - Determining method of teaching learning - Conditions of learning - Method of teaching - Principles of teaching

Unit – II

Presentation technique - Steps in presentation – Methods of teaching various physical activities

Unit – III

Command - Meaning - Types of commands – Situations - Types of formation - Class management - Principles of good class Management.

Unit – IV

Lesson Plan – Definition - objectives – Values – Types – General, Particular–various parts – Demonstration - Play day.

Unit – V

Tournaments –Definition Types of tournaments - Knock out – (single elimination, seeding and special seeding) League or Round

robin tournaments (cyclic & stair case) - Combination Tournaments - Challenge Tournaments.

Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Explain the student can characterize the methods, forms and means used during the formation.	10
CO-2	The formation of motor skills and physical fitness tests used for diagnosis of motor skills.	9
CO-3	The student can characterize the methods, forms and means used during the formation.	8
CO-4	The motor skills and physical fitness tests used for diagnosis of motor skills	7

Text book:

1. Knapp. Clyde and Hagmani. E.P. Teaching Methods for Physical Education : New Yark, Graw Hill; Book Co., 1948.

References Books

1. Knapp. Clyde and Hagmani. E.P. Teaching Methods for Physical Education: Newark, Graw Hill; Book Co., 1948.
2. Kozman, B. Casidy Rowalind and Jackson . C.O. Methods in Physical Education: London_W.B. Sanuders Cop., 1960.
3. Thirunarayan C. and Hariharan S., Methods in Physical Education, South India Press, Karaikudi-1

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Semester – II **Hours/week-6**
Code- 18U2PEA01 **Credit-4**

Health Education and Nutrition

Objective: To provide knowledge on Health and Hygiene

Unit – I

Health – Definition – Types of Health - Physical health – Mental Health – Social Health – Emotional Health – Spiritual Health - Determination of Health – Factor influencing health.

Unit – II

Health problems in India – Population and Health – Environment Pollutions – Water pollution – Air pollution - Immunity – Types of immunity – immunization programmes.

Unit – III

Communicable disease – Meaning – Types of Communicable disease – signs, symptoms and preventive measures – Malaria – Typhoid – Cholera – Dysentery – Dengue – Sexually transmitted diseases - Hiv.

Unit – IV

Nutrition – Meaning - Balanced Diet – Carbohydrates - Fats & protein - source for fuels – Vitamins - Fat soluble and water soluble – Minerals - importance of athletic diet - Food Pyramid.

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Unit – V

Sports Nutrition –carbohydrate loading, Protein loading, vitamins & Minerals loading calcium & Iron supplement - Pre-event meal - Food to avoid Pre-event meal - weight Management.

Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Analyze a chosen physical activity in a systematic way, taking participatory, leadership and research roles	5
CO-2	The leadership roles in health, fitness, and wellness related industries,	9
CO-3	Understand how mechanical principles can be applied to the analysis of human movement to assess and improve performance and reduce risk of injury.	8
CO-4	Perform food management functions in business, health-care, community, and institutional arenas.	3

Text Book:

1. Pre-event meal, food to avoid, Time for Pre – event meal, Altemating eating pattern exercise and weight control, crash dieting, weight control.

References Books

1. Dr.S.K.Mangal and Dr.P.C. Chadha. Health and physical Education Ludhinana. R.D. Tandon Brothers. 1979.
2. Foundation of health, Harer Bros.
3. Neiniah, School Health Education, Harper and Bros.
4. Birkitt. D. Medical application of Clinical Nutrition, New Canon, Keats U.S.A 1983.

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Semester – II **Hours/week-5**
Code- 18U2PEA02
Credit-4

Kinesiology and Bio-Mechanics

Objective: To Understand the Body Movement and Analysis of Movement Pattern

Unit-I

Kinesiology- Meaning – History – Role of Kinesiology in Physical education – Synovial joints in the body movement.

Unit-II

Muscular Contraction -Types – isotonic – isometric - iso-kinetic contractions - Origin - Insertion - Action of muscles - Moving of the shoulder - Elbow – Hip - Knee and Ankle joints.

Unit -III

Bio-mechanics -Meaning - Definition -– Need and Importance of Biomechanics in Physical Education - Motion – Definition- Types of Motion – Linear – Rotary - Angular Motions - Newton's Laws of Motion.

Unit-IV

Equilibrium – Meaning- - Center of Gravity-– Stages of Equilibrium – Factors determining the degree of stability. – Axis.

Unit-V

Force – Meaning -Definition - – Factors affecting force – Characteristics of Force -Types of force – Internal Forces – External Force – Factors influencing force.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Identify biomechanical, health, physiological, and psychological limitations to and interventions for improving physical performance	3
CO-2	The leadership roles in health, fitness, and wellness related industries,	5
CO-3	Develop physical conditioning programs based.	6
CO-4	Scientific principles designed to develop physical fitness and improve athletic performance	2

Text books:

1. Broor, 1996 "Efficiency of Hyman Movements". Mosby & Co. Saint Louis

Reference books:

1. Cooper and Classgow, 1976, "Kinesiology", C.V Mosby Company, Saint Louis.
2. Katherine, FW, 1996, "Kinesiology", WB Saunders, London.
3. Kelly, P.L. 1992, "Kinesiology and Fundamentals of Motions Dictionary", Perntice Hall, New Jersey

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B.Sc Physical Education

Semester – II **Hours/week-5**
Code- 18U2PE04 **Credit-4**

Organization and Administration in Physical Education

OBJECTIVE: To understand the policies and programmes in physical education

Unit- I

Organization and administration - Meaning - Importance of organization and administration - Guiding principles of organization.

Unit -II

Schemes of Organization in Physical Education - Schools – Colleges – Universities – Districts – States – National.

Unit -III

Facilities - Standards for outdoor Ground preparation - Standards for indoor Stadium in educational institutions – Maintenances of Indoor and Outdoor facilities.

Unit -IV

Curriculum - Definition - Need and importance - syllabus preparation - Development of course studies - Types of programme – Intramural – Extramural.

Unit- V

Budget- Meaning - Source of Income – Approved items of expenditure – Rules for the utilization of games fund - Fund Preparation - Administration of budget and accounting - Maintaining various types of records - Registers and reports.

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Department of Physical Education

B.Sc Physical Education

Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Analyze a chosen physical activity in a systematic way, taking participatory, leadership and research roles	7
CO-2	The leadership roles in health, fitness, and wellness related industries,	8
CO-3	Understand how mechanical principles can be applied to the analysis of human movement to assess and improve performance and reduce risk of injury.	9
CO4	develop physical fitness and improve athletic performance and reduce risk of injury	10

Text Book:

1. Hughes, L.W. and French, E. The Administration of Physical Education, Ronald ress Co.
2. Jospeh, P.M. Organisation of Physical Education, Old students Assn. TIPE, Kandivilli, Bombay.

References Books:

1. Hughes, L.W. and French, E. The Administration of Physical Education, Ronald ress Co.
2. Jospeh, P.M. Organisation of Physical Education, Old students Assn. TIPE, Kandivilli, Bombay.
3. Nash, J.B. and et.al Organisation and Administration of Physical Education, A.S. Barners & Co.

Selvamm Arts and Science College (Autonomous), Namakkal

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Semester – II **Hours/week-3**
Code- 18U2PEP01 **Credit-2**

Practical – I Major Games - I
(Kho-Kho, Kabaddi, Foot ball, cricket)

Objective: Invasion games are goal oriented and characterized by "invading" teams half of the space or playing area

Unit-I

Warming – Up - General Warming up - Specific Warming up - Cool down - Safety Measures - Kho-Kho, Kabaddi, Foot ball, and cricket.

Unit-II

Kho-Kho - Fundamental Skills - Offensive skills – Defensive skills – Tactics - Rules and their Interpretations.

Unit-III

Kabaddi - Fundamental Skills – Offensive skills – Defensive skills – Tactics - Rules and their Interpretations.

Unit-IV

Foot ball - Fundamental Skills – Offensive skills – Defensive skills – Tactics - Rules and their Interpretations.

Unit-V

Cricket - Fundamental Skills – Bowling styles – Bating styles - Tactics - Rules and their Interpretations.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Carried out practical work related to the biological subjects above, and produced word-processed reports of that work	2
CO-2	Ability to identify risks of and safe approaches to exercise and physical activity.	3
CO-3	Demonstrate understanding of peoples and cultures that are similar and different from your own.	1
CO4	Generate innovative ideas, and go beyond the obvious and predefined	4

Text book:

1. Bavinson Perinbaraj S. and others – History of Physical Education, Vinsi Publications, Karaikudi, 2002.
2. Book of Rules of Games and Sports (Revised Edition), National Council of Y.M.C.A., As of India, New Delhi, 2003

Reference books:

1. Bevinson Perinbaraj. S., History of Physical Education, Vinsi Publications, Karaikudi, 2002.
2. Book of Rules of Games and Sports (Revised Edition). National Council of y.m.c.a. As of India, New Delhi, 2003.
3. Saggar S.K., Skills and Tactics: Volleyball, Lokesh Thani Sports Publication, Delhi, 1994.

Selvamm Arts and Science College (Autonomous), Namakkal

Department of Physical Education

B.Sc Physical Education

Semester – III **Hours/week-6**

Code-18U3PE05 **Credit-4**

Exercise Physiology

Objective: The basic of exercise physiology improving wellness through the benefits of exercise.

Unit – I

Skeletal system Meaning, definition, Scope - – Types of skeletal muscle fiber – Types of muscular contraction – Fatigue – Effect of training on muscular system.

Unit – II

Cardio vascular system - cardio cycle – Stroke volume — Cardiac output during exercise – Heart rate response to exercise — Effect of training on cardio vascular system.

Unit – III

Circulatory system- Blood pressure (Systolic, Diastolic) – Blood volume – Blood flow – Effect of exercise on circulatory system.

Unit – IV

Respiratory System - Mechanism of Respiration – Lung volumes and capacities – Exchange of gases -Oxygen debt – Ventilation during exercise — Effect of training on respiratory system.

Unit - V

Nervous system - Nerve control of muscular activity - Effect of training on nervous system

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	To recognize and understand the mental & physical domains of injury prevention and care	7
CO-2	Utilize core instrumentation, equipment for the monitoring and assessment of exercise clients	3
CO-3	Identify exercise needs of a person/team and design appropriate exercise interventions.	8
CO4	Demonstrate an applied understanding of the form and function of the human body	10

Text Book:

1. Robert N. Singer, "Motor Learning and Human Performance", NewYork: The Macmillan Co.
2. Miroslaw Vauks and Bryant Cratty, "Psychology and the Superior Athlete", London, The Macmillan Co.

References Books:

1. Clarke David H., Exercise Physiology, Prentice Hall., Inc., Englewood cliffs, New Jersey, 1975.
2. Berger Richard A., Applied Exercise Physiology, Lea & Febiger, U.S.A. 1982.
   Moses Amrit Kumar R., Introducation to Exercise Physiology, Poompugar

Selvamm Arts and Science College (Autonomous), Namakkal

Department of Physical Education

B.Sc Physical Education

Semester – III **Hours/week-5**

Paper Code: 18U3PE06 **Credit-4**

Theory of Track and Field – I

(Objective: The objective of athletics is contained in the motto "citius, altius, forties" or faster, higher, stronger." Run faster, throw or jump faster and higher, last longer

Unit-I

Track Events: (Sprint – Crouch Start - Acceleration Run – Maximum Speed - Finish – Types: Middle & Long Distance Races – Standing Start – Techniques of Running – Finished.

Unit-II

Relay Races - Method of Baton Exchanges (Up Sweep, Down Sweep, Push pass) – Style of Baton Exchange – (Visual Method ,Non Visible Method) – Fixing –Up of Running for Difference Relay Races.

Unit-III

Combined Events: Heptathlon – Decathlon – Order of Events –Duration of Events – Warring Cards

Unit-IV

Long Jump -Techniques Approach Run – Take Off- Flight in the Air- Landing- High Jump – Techniques Approach Run – Take Off – Clearing the Bar - Landing

Unit-V

Shot Put : Stance – Hold – Techquies – Release – Follow Through : javelin Throw – Grip – Types – Carry –Types - Cross stride - Penultimate stride Follow Through .

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Student will be able to apply the basic rules, terminology, and strategies of various sports through participation in class activities	2
CO-2	Utilize Track and field is a sport which includes athletic contests established on the skills of running, jumping, and throwing	3
CO-3	Track and field is categorized under the umbrella sport of athletics, which also includes road running, cross country running, and race walking	1
CO4	Design and monitor exercise prescriptions and fitness programming.	5

Text book:

1. Bavinson Perinbaraj. S. and others – History of Physical Education, Vinsi Publications, Karaikudi, 2002.
2. Book of Rules of Games and Sports (Revised Edition), National Council of Y.M.C.A., As of India, New Delhi, 2003.

Reference Books:

1. George Immanuel, Track and Field Event layout and Marking.
2. AAFI Rules Book.
3. Seation Don Cash and others, Physical Education Hand Book, Prentice – Hall inc., Englewood cliffs, New Jersey, 1983.

Selvamm Arts and Science College (Autonomous), Namakkal

Department of Physical Education

B.Sc Physical Education

Semester – III **Hours/week-5**

Code-18U3PEA03 **Credit-4**

Adapted Physical Education

Objective: Change the word "adapted" to "modified" and you have the idea of adapted physical education. It is good teaching which adapts the curriculum, task, equipment, and or environment so that all students can fully participated in physical education.

Unit-I

Adapted Physical Education – Meaning - definition –definition of Disability and Rehabilitation – Disable – Disability – Handicap – Impaired – Multiple disability rehabilitation – Special education – Inclusive education – Definition.

Unit-II

Classification of Disability – Disability / differentially able – Blind – Deaf and Dumb – Orthopedically – Mentally Challenged.

Unit-III

Rules of Adapted games and Class Management – Adapted Physical Education for the blind - -Adapted volleyball / Adapted Kabaddi - Adapted track and field events - teaching methods to be adapted for Special Educator in Sports

Unit-IV

Principles of adaptation - Adaptation of Motor Activities – According to the Disability – court marking – Equipment -personal activity – Rules.

Unit-V

International Competitions – structure of Paralympics and special Olympics - Rules and their Interpretations of the competitions.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	To provide students with knowledge, skills, and competencies that enable job attainment and transcend professional practice	2
CO-2	Students will demonstrate appropriate use of adapted equipment and exercise	4
CO-3	Students will execute proper safety procedures specific to adapted equipment use	6
CO4	Students will perform a series of small and large muscle group activities consistent with their individual plan	8

Text Book:

1. Clauding and Sherill, adopted physical education and recreation, C. Brown publishers, IOWA.
2. Paul. A. Metzge, elementary school physical education, C. Brown Company publishers.

Reference Books:

1. Clauding and Sherill, adopted physical education and recreation, C. Brown publishers, IOWA.
2. Paul. A. Metzge, elementary school physical education, C. Brown Company publishers.
3. Barow, Harold, M., McGee, rosemary, A Practical approach to measurement in Physical Education, Philadelphia, Lea and Febiger, 1964.

Selvamm Arts and Science College (Autonomous), Namakkal

Department of Physical Education

B.Sc Physical Education

Semester – III **Hours/week-2**

Code : 18U3PES01 **Credit-2**

SBEC-I

Officiating and Coaching in Track and Field

Objective: To know rules and regulations and officiating Competition organization

Unit-I

Track Events: Marking and Measurements of Standard and Non Standard Track (200Mts, 400Mts) – Computations of RDR - Stagger Distance – Dialogue Excess – Arc Start - Double Arc Start.

Unit-II

Track Events: (Sprint, Middle, Long Distances & Relay races) Rules and Interpretations –Duties of Officials –Competition Organization.

Unit-III

Field Events: (Long Jump, Triple Jump, High Jump, Shot Put, Discus Throw and Javelin Throw) Marking and Measurements – Specifications of Equipments.

Unit-IV

Field Events: (Long Jump, Triple Jump, High Jump, Shot Put, Discus Throw and Javelin Throw) Rules and Interpretations – Duties of Officials – Competition Organization.

Unit-V

Combined Events: (Heptathlon and Decathlon) Rules and Interpretations Duties of Officials – Competition Organization

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Student demonstrates improvement in the basic fundamental skills in various sports through a pre/post skills test.	3
CO-2	Display competencies in executing basic techniques and Skills associated with some track and field events.	7
CO-3	Develop basic skills and techniques to improve one's running posture	4
CO4	Appreciate track and field events by applying sports science knowledge	2

Text book:

1. George Immanuel, Track and Field Event layout and Marking.
2. AAFI Rules Book.
3. Seation Don Cash and others, Physical Education Hand Book, Prentice – Hall inc., Englewood cliffs, New Jersey, 1983.

Reference Books:

1. Jain D., Play and Learn: Hand Ball, Khel Satitya Kandra, New Delhi, 2003.
2. Abraham R. Methodology of Soccer Teaching, Y.M.C.A. College Staff Quarters, Medras, 1993.
3. Saggar S.K., Skills and Tactics: Volleyball, Lokesh Thani Sports Publication, Delhi, 1994.

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B.Sc Physical Education

Semester – III **Hours/week-2**
Code- 18U3PEN01 **Credit-2**

Health Education and Nutrition

Objective: To provide knowledge on Health and Hygiene

Unit – I

Health – Definition – Types of Health - Physical health – Mental Health – Social Health – Emotional Health – Spiritual Health - Determination of Health – Factor influencing health.

Unit – II

Health problems in India – Population and Health – Environment Pollutions – Water pollution – Air pollution - Immunity – Types of immunity – immunization programmes.

Unit – III

Communicable disease – Meaning – Types of Communicable disease – signs, symptoms and preventive measures – Malaria – Typhoid – Cholera – Dysentery – Dengue – Sexually transmitted diseases - HIV.

Unit – IV

Nutrition – Meaning - Balanced Diet – Carbohydrates - Fats & protein - source for fuels – Vitamins - Fat soluble and water soluble – minerals - importance of athletic diet - Food Pyramid.

Unit – V

Sports Nutrition –carbohydrate loading, Protein loading, vitamins & Minerals loading calcium & Iron supplement - Pre-event meal - Food to avoid Pre-event meal - weight Management.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Analyze a chosen physical activity in a systematic way, taking participatory, leadership and research roles	5
CO-2	The leadership roles in health, fitness, and wellness related industries,	9
CO-3	Understand how mechanical principles can be applied to the analysis of human movement to assess and improve performance and reduce risk of injury.	8
CO-4	Perform food management functions in business, health-care, community, and institutional arenas.	3

Text Book:

1. Pre-event meal, food to avoid, Time for Pre – event meal, Altemating eating pattern exercise and weight control, crash dieting, weight control

References Books:

1. Dr.S.K.Mangal and Dr.P.C. Chadha. Health and physical Education 2.Ludhinana. R.D. Tandon Brothers. 1979.
2. Foundation of health, Harer Bros.
3. Neiniah, School Health Education, Harper and Bros.

4. Birkitt. D. Medical application of Clinical Nutrition, New Canon, Keats U.S.A 1983.

Selvamm Arts and Science College (Autonomous), Namakkal

Department of Physical Education

B.Sc Physical Education

Semester – IV **Hours/week-5**

Code-18U4PEE01 **Credit-4**

Safety Education and First Aid

Objective: By completing this lesson, students will learn about safety and first aid,

Unit – I

Meaning and definition of Safety - Safety in Physical Education and Sports – Safety with respect to buildings - Safety in Play fields – Equipments – Dress etc.

Unit – II

Safety at School – Structure and Environment – furniture – school procedures – emergency equipments – collection of information - Address of Parent – hospitals

Unit – III

Safety Education - Definition - Principles of safety Education - Safety with respect to organization of classes – demonstration – Matches – Fire safety station and Ambulance Services.

Unit – IV

Fist aid - Meaning and definition– Burns – Drowning –Electricshock- Artificial Respiration - First Aid – Poison – bites – Snake – Dog — Road – Accident - Fire.

Unit – V

Definition -Causes – Types – Symptoms - Management **–** Fracture - Dislocation – Sprain – Strain- RICE– Technique – Cramp- Causes and Management

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Identify the most important action you can take in a life-threatening emergency.	2
CO-2	Identify the major structures of the respiratory, circulatory, nervous, musculoskeletal systems.	8
CO-3	Explain why you should follow the emergency action steps/principles in any emergency.	4
CO4	Demonstrate knowledge of first aid management for a range of common illnesses and injuries	6

Text book:

1. Neinaiah, School Health Edu., Harper and Bros.,

Reference Book:

2. Moss and others, Health Edn., National Educational Annual, U.S.A.
3. Neinaiah, School Health Edu., Harper and Bros.,
4. J.E.Park, Text Book of Preventive and School Medicine.

Selvamm Arts and Science College (Autonomous), Namakkal

Department of Physical Education

B.Sc Physical Education

Semester – IV **Hours/week-2**

Paper Code: 18U4PES02 **Credit-2**

SBEC-II

Officiating and Coaching in Major Games

(Foot ball, Hand ball, Volley ball, Kabaddi, Kho-Kho)

Objective: To know rules and regulations and officiating Tournaments organization

UNIT-I

Foot ball **-** Rules and Interpretations – Duties of Officials – Official signals - Tournaments Organization

UNIT-II

Hand Ball **-** Rules and Interpretations – Duties of Officials – Official Signals - Tournaments Organization

UNIT-III

Volley ball **-** Rules and Interpretations – Duties of Officials – Official Signals -Tournaments Organization

UNIT-IV

Kabaddi - Rules and Interpretations – Duties of Officials – Official Signals - Tournaments Organization

UNIT-V

Kho-Kho - Rules and Interpretations – Duties of Officials – Official Signals - Tournaments Organization

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	A learning outcome is a specific statement that identifies the knowledge, skills, attitudes and values all children should achieve or demonstrate	3
CO-2	Design games activities for learning, enjoyment and performance.	7
CO-3	Apply games activities for learning, enjoyment and performance to practices, classes and competitions. Teach and coach both technical and tactical skills by using the games approach.	4
CO4	Understand the ethical and legal responsibilities involved in sports officiating.	1

Text Book:

1. Dr.S.K.Mangal and Dr.P.C. Chadha. Health and physical Education Ludhinana. R.D. Tandon Brothers. 1979.
2. Foundation of health, Harer Bros.

Reference Books:

1. Jain D., Play and Learn: Hand Ball, Khel Satitya Kandra, New Delhi, 2003.
2. Abraham R. Methodology of Soccer Teaching, Y.M.C.A. College Staff Quarters, Medras, 1993.
3. Saggar S.K., Skills and Tactics: Volleyball, Lokesh Thani Sports Publication, Delhi, 1994.

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Semester – IV **Hours/week-2**

Code-18U4PEN02 **Credit-2**

Nmec-II Major Games

(Foot ball, Hand ball, Volley ball, Kabaddi, Kho-Kho)

Objective: To Encourage the practice of student's skill and technique

Unit-I

History of the game – Foot Ball - Origin and development of the game in India – Construction of play field/court - Marking - Fundamental skills in Foot ball – Techniques – Lead up activities.

Unit-II

History of the game – Hand Ball - Origin and development of the game in India – Construction of play field/court - Marking - Fundamental skills in Hand ball – Techniques– Lead up activities.

Unit-III

History of the game – Volley Ball - Origin and development of the game in India – Construction of play field/court - Marking - Fundamental skills in Volley ball – Techniques – Lead up activities.

Unit-IV

History of the game – Kabaddi - Origin and development of the game in India – Construction of play field/court - Marking - Fundamental skills in Kabaddi – Techniques – Lead up activities.

Unit-V

History of the game – Kho-Kho - Origin and development of the game in India – Construction of play field/court - Marking - Fundamental skills in Kho-Kho – Techniques– Lead up activities.

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Course outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Carried out practical work related to the biological subjects above, and produced word-processed reports of that work	2
CO-2	Ability to identify risks of and safe approaches to exercise and physical activity.	3
CO-3	Demonstrate understanding of peoples and cultures that are similar and different from your own.	1
CO4	Generate innovative ideas, and go beyond the obvious and predefined	4

Text book:

1. Bavinson Perinbaraj S. and others – History of Physical Education, Vinsi Publications, Karaikudi, 2002.
2. Book of Rules of Games and Sports (Revised Edition), National Council of y.m.c.a., As of India, New Delhi, 2003

Reference books:

1. Bevinson Perinbaraj. S., History of Physical Education, Vinsi Publications, Karaikudi, 2002.
2. Book of Rules of Games and Sports (Revised Edition). National Council of y.m.c.a. As of India, New Delhi, 2003.
3. Saggar S.K., Skills and Tactics: Volleyball, Lokesh Thani Sports Publication, Delhi, 1994.

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Semester – IV **Hours/week-6**

Code : 18U4PEP02 **Credit-3**

Practical – I – Track and Field-I

(Sprint, Middle Distance Relay, Long jump, High jump , Shot put, Javelin, Companied events)

Objective: To impart the students on the subject sports and games active practically.

Unit-I

Sprint: Types of Start - Crouch start – Finish - Middle distances: Standing start - Finish- Relay : Style of Baton Exchange – (Visual Method ,Non Visible Method) – Fixing –Up of Running for Difference Relay Races.

Unit-II

Teaching – Demonstration - Long Jump & Style of long jump - Approach run - Take-off - Flying phase – Landing High Jump – Techniques Approach Run – Take Off – Clearing the Bar - Landing

Unit-III

Combined Events: Heptathlon – Decathlon – Order of Events –Duration of Events – Warring Cards

Unit-IV

Long Jump -Techniques Approach Run – Take Off- Flight in the Air- Landing- High Jump – Techniques Approach Run – Take Off – Clearing the Bar - Landing.

Unit-V

Shot Put : Stance – Hold – Techquies – Release – Follow Through : javelin Throw – Grip – Types – Carry –Types - Cross stride - Penultimate stride Follow Through .

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Student will be able to understand the basic components needed to lead a healthy lifestyle and will be able to apply These components to the various sports covered in class.	5
CO-2	The basic sports science knowledge and skills	8
CO-3	Health benefit of muscular fitness/strength definition of speed, agility and coordination.	6
CO4	running, jumping and throwing so as to execute and appreciate Track & Field events	1

Text book:

1. George Immanuel, Track and Field Event layout and Marking.
2. AAFI Rules Book.

Reference books:

1. George Immanuel, Track and Field Event layout and Marking.
2. AAFI Rules Book.
3. Seation Don Cash and others, Physical Education Hand Book, Prentice – Hall inc., Englewood cliffs, New Jersey, 1983.
4. Couling David, Athletics A Handbook for Teachers, Robert Hale Limited, London, 1980

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Department of Physical Education

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Semester – V **Hours/week-5**

Code- **18U5PE07** **Credit-4**

Elementary Statistics

Objective: A First Course in Statistics for Students in Physical Education

Unit -I

Statistics – Definition – Meaning – Need and importance – Types of statistical processes – Descriptive – Comparative Relationship – Inferential – Predictive.

Unit -II

Sample – Meaning – Population – Quantitative data – Variables – Types of variables – Discrete – Continuous.

Unit -III

Meaning of Raw data – Single score – Grouped data – Frequency table – Range – Intervals – Computing frequency table.

Unit -IV

Measures of Central Tendency – Computation – Mean – Median – Mode – Characteristics and Uses of Measures of Central Tendency.

Unit -V

Measures of variability – Standard deviation - Quartile deviation – Percentiles - Deciles – Graph presentation.

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Department of Physical Education

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Recognize, examine and interpret the basic principles of describing and presenting data	7
CO-2	Appreciate the importance of probability and statistics in computing and research Develop skills.	4
CO-3	Presenting quantitative data using appropriate diagrams, tabulations and summaries Use appropriate statistical methods.	6
CO4	The analysis of simple datasets Interpret and clearly present output from statistical analyses in a clear concise and understandable manner.	3

Text Book:

1. Larson L.A., and Yocom R.D. Measurement and Evaluation in Physical Health and Recreation Education St. Louis, C.W. Mosby Co. 1951.
2. Mathew, D.K. Measurement in Physical Education, London W.B. Saunders Co. 1973.

Reference Books

1. Clarke, H. Harrison and Clarke H. David, Research Process in Physical Education, Englewood Cliffs, New Jersey, Prentice – Hall., Inc.,1984.
2. Wilks, S.S., Elementary Statistical Analysis, Calcutta: Oxford and IBH – Publishing Co., 1964.

Selvamm Arts and Science College (Autonomous), Namakkal

Department of Physical Education

B.Sc Physical Education

Semester – V **Hours/week-5**

Code- **18U5PE08** **Credit-4**

Theory of Major Games -II

(Basket ball, Hockey, Badminton, Tennis, Ball Badminton)

Objective: To impart the students on the subject sports and games active theoretically

Unit-I

History of the game – Basket Ball - Origin and development of the game in India – Construction of play field/court - Marking - Fundamental skills in Basket ball – Techniques – Lead up activities.

Unit-II

History of the game – Hockey - Origin and development of the game in India – Construction of play field/court - Marking - Fundamental skills in Hockey – Techniques – Lead up activities.

Unit-III

History of the game – Badminton - Origin and development of the game in India – Construction of play field/court - Marking - Fundamental skills in Badminton – Techniques – Lead up activities.

Unit-IV

History of the game – Tennis - Origin and development of the game in India – Construction of play field/court - Marking - Fundamental skills in Tennis – Techniques – Lead up activities.

Unit-V

History of the game – Ball Badminton - Origin and development of the game in India – Construction of play field/court - Marking - Fundamental skills in Ball Badminton – Techniques – Lead up activities.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	A learning outcome is a specific statement that identifies the knowledge, skills, attitudes and values all children should achieve or demonstrate	3
CO-2	The course covers an introduction to the electronic game design and development careers.	2
CO-3	Apply games activities for learning, enjoyment and performance to practices, classes and competitions.	7
CO4	Teach and coach both technical and tactical skills by using the games approach.	5

Text Book:

1. Bavinson Perinbaraj. S. and others – History of Physical Education, Vinsi Publications, Karaikudi, 2002.
2. Book of Rules of Games and Sports (Revised Edition), National Council of Y.M.C.A., As of India, New Delhi, 2003.

Reference Books:

1. Jain D., Play and Learn: Hand Ball, Khel Satitya Kandra, New Delhi, 2003.
2. Farmer Bob, How to play Cricket, The Hamlyn Publishing Group Limited, London, 1979.
3. Abraham R. Methodology of Soccer Teaching, Y.M.C.A. College Staff Quarters, Medras, 1993.
4. Thani Lokesh, Skills & Tactics: Hockey, Sports Publication, Delhi, 1995.

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Semester – V **Hours/week-5**

Code- 18U5PE09 **Credit-4**

Theory of Track And Field – II

(Long and Middle distance races, Hurdles, Triple Jump, High Jump, Hammer, Discus, Marathon Race and Steeple chase)

Objective: To import the students on the subject sports and games active theoretically

Unit-I

Specification and Marking of Hurdles – Triple Jump – High Jump – throwing Discus & Hammer sector – Triple jump - High Jump runway - landing area.

Unit-II

Rules and their interpretations of Hurdle Races – Field Events – Triple Jump – High Jump – Discus – Hammer – Combined Event (Decathlon).

Unit-III

Duties and Responsibilities of the Officials – Management Officials – Competition Officials - Additional Officials.

Unit-IV

Long and middle distance races – Crouch Start - Standing start – Marathon Race and Steeple Chase – Hurdle - Start – Clearing the hurdle – Body position – Finish.

Unit-V

Triple Jump - High Jump - Approach – Take off – Flying phase – Landing - Hammer – discus - Hand hold – Initial swing and Stance – Glide – Release action – Reverse.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Demonstrate understanding of peoples and cultures that are similar and different from your own.	2
CO-2	Integrate physical and mental skills development	6
CO-3	Demonstrate the inclusion of participants of all abilities through the use of the games approach.	7
CO4	Personal and social responsibility through the use of the games approach.	4

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Text Book:

1. George Immanuel, Track and Field Event layout and Marking.
2. AAFI Rules Book.

Reference Books:

1. George Immanuel, Track and Field Event layout and Marking.
2. AAFI Rules Book.
3. Seation Don Cash and others, Physical Education Hand Book, Prentice – Hall inc., Englewood cliffs, New Jersey, 1983.
4. Couling David, Athletics A Handbook for Teachers, Robert Hale Limited, London, 1980.

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Semester – V **Hours/week-5**

Code- **18U5PE10**
Credit-4

Scientific Principals of Sports Training

Objective: A set of attributes relating to people's ability to perform physical activity.

Unit-I

Sports Training – Meaning - Aim of Sports Training - Tasks - Characteristics – Principles of sports training – Scope of sports Training.

Unit-II

Important features of training load - Intensity – Density - Duration - Frequency – Principles of training load – Training and adaptation.

Unit-III

Development of Important Motor Components - Resistance - Forms of strength – Characteristics of strength – Types of strength – Endurance - Forms of Endurance – Characteristics of Endurance – Types of Endurance.

Unit-IV

Speed - Forms of Speed – Characteristics of speed – Speed training means and methods – Flexibility - Forms of Flexibility – Characteristics of Flexibility – Methods of development of flexibility.

Unit-V

Training plans – Long term plan – Short term plan – Periodisation (Single, double and multiple) – Cycle process of training – Preparation for competition.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	describe philosophies and objectives of coaching and illustrate	4
CO-2	Design and implement a team sport practice session for healthy populations.	6
CO-3	Observe and evaluate coaching styles, including coaching objectives and philosophy.	7
CO4	how they affect coaching processes and athlete guidance	2

Text Book:

1. Rathborne. J.I.W.B., Corrective physical Education, Sauders and Co., London 1965.
2. Prof E.M. Naro, Mannual of Massage and Movement, Faver and Faber Ltd.

Reference Book:

1. Singh Hardayal, Sports Training: General Theory and Methods, NSNIS, Patiala, 1984.
2. Vidyasagar, Training Systematics in Throwing, NSNIS, Patiala, 1979.
3. Dick Frank W., Sports Training Principles, Henry Kimpton Publishers Ltd., London, 1980.

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Semester – V **Hours/week-5**

Code- **18U5PE11** **Credit-4**

Test, Measurement and Evaluation

Objective: To construct various test in physical education

Unit-I

Meaning and Definition of the terms – Test – Measurement – Evaluation – Need and Importance of measurement and evaluation in physical education.

Unit-II

Criteria of test selection – Validity – Reliability – Objectivity - Norms and Administrative feasibility – Classification of test – Standardized test and Teacher made test – rating scales.

Unit-III

Physical fitness test – AAPHERD Health related fitness test - Motor fitness test – JCR test – Motor Ability – Barrow Motor Ability Test.

Unit-IV

Cardio vascular test – Harvard Step test - cooper's 12/9 minutes Run/Walk test – Skin fold measurements – Percent body fat.

Unit-V

Skill test – Basketball - Johnson Basketball Ability Test – Hockey - Schmithals French Field Hockey Test – Soccer - Mc Donald Soccer Test – Volleyball - Russel Lange Volleyball Test – Badminton - Miller Wall Volley Test - Tennis - Broer Miller Tennis Test.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Teaching, curriculum development, and school improvement.	6
CO-2	The function of measurement and evaluation in improving instruction.	9
CO-3	Teaching, learning and evaluation are three interdependent aspects of the educative process	10
CO4	To develop valid grading procedures using assessment results.	8

Text Book:

1. Singh Hardayal, Sports Training: General Theory and Methods, NSNIS, Patiala, 1984.
2. Vidyasagar, Training Systematics in Throwing, NSNIS, Patiala, 1979.

Reference Books:

1. Jenson, Clayne R. & Cyntha C. Hirst, Measurement in Physical Education and Athletics, Macmillan Publishing Co., Inc. 1980.
2. Clarke, H. Harrison, Application of Measurement to Health and Physical Education, Englewood cliffs, N. J. Prentice Hall Inc.
3. Barrow Harold M. and Rosemary Mc Gee. A Practical Approach to Measurement in Physical Education, Lea & Fiber Philadelphia, 1979.

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Semester – V **Hours/week-5**

Code- **18U5PEE02** **Credit-4**

Gymnastics

Objective: How to develop the flexibility and fitness components

Unit- I

Warming – Up - General Warming up - Specific Warming up - Cool down -Fundamental Skills - The fundamental skills - Stance / Foot work – uniform – Equipment -

Safety Measures.

Unit- II

Floor exercise - Hand stand walk - Forward roll - Backward roll – Cartwheel - Jump forward roll - Round arm.

Unit –III

Equipment Exercise - Roman rings - pommel horse - horizontal bar - un even bar - Balance beam.

Unit- IV

Development of Muscular strength – Flexibility – Agility – Balance – Power - Exercise Programme for various parts of the body – Flexibility Training - muscular training.

Unit- V

Rules and their Interpretations.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Incorporating gymnastic actions and various forms of locomotion on small and large apparatus	3
CO-2	Constructs productive sport skills with the knowledge gained from Gymnastics.	7
CO-3	To experience jumping, sliding, rolling. Moving over, under and on apparatus.	1
CO4	Arranges a training programme to developer fundamental motoric characteristic in artistic gymnastic	8

Text Book:

1. Jenson, Clayne R. & Cyntha C. Hirst, Measurement in Physical Education and Athletics, Macmillan Publishing Co., Inc. 1980.
2. Clarke, H. Harrison, Application of Measurement to Health and Physical Education, Englewood cliffs, N. J. Prentice Hall Inc.

Reference Books:

1. Bevinson Perinbaraj. S., History of Physical Education, Vinsi Publications, Karaikudi, 2002.

2. Book of Rules of Games and Sports (Revised Edition). National Council of Y.M.C.A. As of India, New Delhi, 2003.

3. Saggar S.K., Skills and Tactics: Volleyball, Lokesh Thani Sports Publication, Delhi, 1994.

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Semester – VI **Hours/week-5**

Code- 18U6PE12 **Credit-4**

Care and Prevention of Sports Injuries

OBJECTIVE: The part helps the students to understand the safety measures in physical activities, sports injuries and prevention methods

Unit-I

Care and Prevention – Surveillance of sports injuries – extrinsic and intrinsic factors related to sports injuries – definition of accident – injury – collision – contact and Non – contact.

Unit-II

Warming up and Conditioning - Physical conditioning - over load principle - cool down - flexibility static - Dynamic stretching - Isometric – Isotonic – Iso Kinetics - concentric and eccentric contraction.

Unit-III

Muscle strain - Muscles Soreness (acute and delayed on set) - muscle stiffness - muscle tone and chronic

Unit-IV

Exposed and Unexposed - Primary and secondary injuries - Skin wounds – Blisters - Abrasions - Confusion – Laceration - Incisions puncture – Fracture – Sprain – Strain - Contusion and dislocation

Unit-V

Important of massage - Remedial exercises – Types of Massage - Physiological effects of massage - Classification of the manipulations used in massage.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Demonstrate understanding of the anatomy of shoulder, hip, knee, ankle and vertebral joints of the body	7
CO-2	Demonstrate preventative measures of Athletic Training equipment usage..	5
CO-3	Explain the need for and demonstrate the basic skill in the use of taping in sports for the various body parts..	3
CO4	Identify and discuss the importance, requirements, responsibilities, and roles of being an athletic trainer.	9

Text Book:

1. John D. Lauther, “Sports Psychology”, Englewood, Prentice Hall Inc.
2. Robert N. Singer, “Motor Learning and Human Performance”, NewYork: The Macmillan Co.

Reference Books S:

3. Rathborne. J.I.W.B., Corrective physical Education, Sauders and Co., London 1965.
4. Prof E.M. Naro, Mannual of Massage and Movement, Faver and Faber Ltd.
5. William Mareuam and Catherine worthinglam Therapeutic exercise for body alignment and education, W.B.Saunders and Co., 1965.

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Semester – VI **Hours/week-5**

Code- **18U6PE13**
Credit-4

Sports Sociology and Psychology

Objective: The students will be able to describe the role of sociology and psychology with sport physical education activities

Unit-I

Meaning – Nature – Scope of sociology in physical education – Need and important of Sports Sociology – The structure of sports – Social values.

Unit-II

Socializing institutions – Family – Community – School – State – Nation – Sports and Social problems – Gender issues in sports.

Unit-III

Leader – Definition – Leadership in sports – Spectators and fans – Group cohesion – Competition – Co-operation – Audience effect.

Unit-IV

Sports Psychology – Meaning and definition of Sports Psychology – Need and importance of Sports Psychology in Physical Education and Sports – Development of Sports Psychology.

Unit-V

Motor Learning – Motivation – Factors influencing motivation – Achievement Motivation – Personality – Meaning – Traits of Sportsmen – Effect of Sports Participation on Personality – Types of Motivation.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	demonstrate good ability to independently disseminate knowledge in the field of sports science	4
CO-2	Define theory and describe its role in building sociological knowledge.	9
CO-3	Describe how sociology differs from and is similar to other social sciences, and give examples of these differences.	7
CO4	Demonstrate knowledge, skills, and self-discipline necessary to achieve and maintain physical and emotional well being	6

Text Book:

1. Cooper and Classgow, 1976, “Kinesiology”, C.V Mosby Company, Saint Louis.
2. Katherine, FW, 1996, “Kinesiology”, WB Saunders, London.

Reference Book

1. John D. Lauther, “Sports Psychology”, Englewood, Prentice Hall Inc.
2. Robert N. Singer, “Motor Learning and Human Performance”, NewYork: The Macmillan Co.
3. Miroslaw Vauks and Bryant Cratty, “Psychology and the Superior Athlete”, London, The Macmillan Co

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Semester – VI **Hours/week-5**

Code- **18U6PE14**
Credit-4

Fitness and Wellness

Objective: To participate in activities which are helpful in one's physical growth and development.

Unit-I

Fitness – Meaning - Definition – Relationship of Fitness and Performance – Need and Importance of Fitness.

Unit-II

Categories of Fitness – Health related fitness - Motor Fitness – Components of Health related Fitness - Components of Motor Performance related Fitness.

Unit-III

Factors influencing Fitness – Age – Sex – Climate – Diet – Exercise – Training - Types of exercises used in fitness – Aerobic – Anaerobic – Isotonic - Isometric - Iso-kinetic.

Unit-IV

Development of Muscular strength – Endurance – Flexibility – Cardiovascular endurance – Agility – Balance – Power – Explosive Power - Exercise Programme for various parts of the body.

Unit-V

Cardio respiratory training - Muscular training (strength and endurance) - Fitness activities – Walking – Jogging – Cycling – Games – Sports – Worming up – Cooling Down.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Describe how the components of physical fitness impact health and wellness	2
CO-2	Demonstrate competency in skills and abilities relating to stress management	9
CO-3	Chronic disease prevention, anatomy, exercise physiology, appraising health and fitness,	4
CO4	Worksite wellness program component design, healthy diet, and weight management.	8

Text Books:

1. Broor, 1996 “Efficiency of Hyman Movements”. Mosby & Co. Saint Louis

Reference Books:

1. Frank Don B.Fitness Leader’s Hand Book Human Kinetics Books: Champaign, 1989.
2. Harley E.T. and Franks B.D. Health Fitness Instructions Handbook, Human Kinetics: Champaign, 1997.
3. Carry Egger, Nigel champion and Boiton, The Fitness Leader’s Hand Book, A & C London.

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Semester – VI **Hours/week-5**

Code- **18U6PE15**
Credit-4

Recreation, Camping and Supervising

Objective: To make the students importance how use leisure time

Unit-I

Recreation – Definition – Scope – Significance of recreation – Objectives of recreation – Relationship between play – work – leisure and recreation.

Unit-II

Areas – Facilities - Equipments needed for recreation - Camping - Definition - Meaning – Scope and significance of Camping – Types of Camps – Selection and layout of campsites

Unit-III

Organization - Administration of camps – camp progrmme - Activities – Evaluation of camp work - Short term Course – Refresher Course – Clinics – Seminars and conferences.

Unit-IV

Supervision – Meaning - Need for supervision – Guiding principles of supervision – Qualities and qualification of supervisor – supervisor's relationship with the administrator – physical education teacher.

Unit-V

Techniques of Supervision – Visitation – Periodical – Surprise – Request social – visitation procedure – report on the visit – Meeting –Individual and Groups – Demonstration for individual teacher / Group teacher – In service training

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	The Recreation, Sports, and Park Administration Program has tremendous community based recreation	5
CO-2	Travel and tourism industry Parks, recreation, and leisure facilities management	7
CO-3	Leisure management Leisure products or services marketing operations	6
CO4	Sports resources and agencies in Springfield and the surrounding areas.	8

Text Books:

1. Cooper and Classgow, 1976, “Kinesiology”, C.V Mosby Company, Saint Louis.

2. Katherine, FW, 1996, “Kinesiology”, WB Saunders, London.

Reference Books

1. Two Experienced Professors, Organization, Administration and Recreation in Physical Education, Parkash Brothers Educational Publisher, Ludhina 1976.
2. Dheer, S., & Radhika Kamal, Organization and Administration of Physical Education, Friends Publication, New Delhi, 1991.
3. Sachdeva, M.S., A. Modern Approach to School Organization and Administration, Parkash Brothers Educational Publisher, Ludhina 1983.

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Semester – VI **Hours/week-5**

Code- **18U6PEP03** **Credit-2**

Practical – III – Major Games-II

(Hand Ball, Hockey, Tennis and Badminton)

Objective: To import the students on the subject sport and games active theoretically

Unit-I

Warming – Up - General Warming up - Specific Warming up - Cool down - Hand Ball - Hockey - Tennis - Badminton - Safety Measures.

Unit-II

Hand Ball - Fundamental Skills - Offensive skills – Defensive skills – Tactics - Rules and their Interpretations.

Unit-III

Tennis - Fundamental Skills - Offensive skills – Defensive skills – Tactics - Rules and their Interpretations.

Unit-IV

Hockey - Fundamental Skills - Offensive skills – Defensive skills – Tactics - Rules and their Interpretations.

Unit-V

Badminton - Fundamental Skills - Offensive skills – Defensive skills – Tactics - Rules and their Interpretations.

Reference Books:]

1. Jain D., Play and Learn: Hand Ball, Khel Satitya Kandra, New Delhi, 2003.

2. Farmer Bob, How to play Cricket, The Hamlyn Publishing Group Limited, London, 1979.

3. Abraham R. Methodology of Soccer Teaching, Y.M.C.A. College Staff Quarters, Medras, 1993.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	identify the different muscles used in various sports	3
CO-2	Improve muscular system, and thereby sporting performance	7
CO-3	Teach and coach both technical and tactical skills by using the games approach.	4
CO4	Demonstrate understanding of peoples and cultures that are similar and different from your own	9

Text Book:

1. Bavinson Perinbaraj. S. and others – History of Physical Education, Vinsi Publications, Karaikudi, 2002.
2. Book of Rules of Games and Sports (Revised Edition), National Council of Y.M.C.A., As of India, New Delhi, 2003.

Reference Books:

1. Jain D., Play and Learn: Hand Ball, Khel Satitya Kandra, New Delhi, 2003.

2. Farmer Bob, How to play Cricket, The Hamlyn Publishing Group Limited, London, 1979.

3. Abraham R. Methodology of Soccer Teaching, Y.M.C.A. College Staff Quarters, Medras, 1993.

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Semester – VI **Hours/week-5**

Code- **18U6PEP04** **Credit-2**

Practical – IV – Track and Field-II

(Long and middle distance races, Hurdles, Triple Jump, High Jump, Hammer, Discus, Marathon, Race Walking and Steeple chase)

Objective: To import the students on the subject sport and games active theoretically.

Unit-I

Teaching – Demonstration – Long Distance - Middle Distance Races – Hurdles –Start - Clearing the hurdle - Lead leg - Trial leg action - Body position - Finish.

Unit-II

Teaching – Demonstration - Triple Jump - Approach run - Take-off - Flying phase - Landing - High Jump - Approach run - Take-off - Flying phase – Landing.

Unit-III

Teaching – Demonstration - Hammer – Hand hold - Initial swing – Stance - Release action, reverse – Discus - Hand hold - Initial swing – Stance – Gliding Technique - Release action – Reverse.

Unit-IV

Teaching – Demonstration - Steeple Chase – Approach run – Hurdles jump - Take off – Clearance the Hurdles - Water jump – Finishing.

Unit-V

Teaching – Demonstration - Marathon Race – Race walking - Correct Walking Style – Foot Placement - Rules and Regulations.

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Course Outcomes:

CO No	Upon completion of this course , students will be able to	PSOs addressed
CO-1	Fundamental movements using correct techniques. Refine, extend and increase the complexity of locomotor, non-locomotor and manipulative skills.	1
CO-2	Teach and coach both technical and tactical skills by using the games approach	75
CO-3	Health benefit of muscular fitness/strength definition of speed, agility and coordination.	7
CO4	Track and field is categorized under the umbrella sport of athletics, which also includes road running, cross country running, and race walking	9

Text Book:

1. George Immanuel, Track and Field Event layout and Marking.
2. AAFI Rules Book.

Reference Books:]

1. George Immanuel, Track and Field Event layout and Marking.
2. AAFI Rules Book.
3. Sedation Don Cash and others, Physical Education Hand Book, Prentice – Hall inc., Englewood cliffs, New Jersey 1983.

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