Syllabus of courses offered during 2015 – 2016

Syllabus for B.Com Part 1

For 2015-16

1 (Compulsory English)

Unit l - Short Stories

The Gifts, Quality, The Axe, Someday, Marriage is a Private Affair, The Taxi Driver

Unit II - Poetry

You Turned Yourself, Mending Wall, Unknown Citizen , Art of Life, Horses Graze, Swan andShadow

Unit III - Essays

Tolerance , The Philosophy of Pleasure , on Painted Face, Knowledge and Wisdom, On Education, What is Indianness?

II- Non Textual

ComponentsUnit IV -

Synonyms, Antonyms, One Word Substitution, Degree:; of Comparison, common errors in English

sentences

III- Business Correspondence

Letter Writing - Enquiries, Complaint, Sales, Placement of order

arid Trade lettersComprehension of Unseen passage

Essay Writing (Social, Economical, Environmental & Current Topics)

2 Hindi

Unit	Particulars
Unit - 1	निंबध
Unit - 2	गद्य विभाग - पाठ्यपुस्तक साहित्य वीथिका
1)	गपशप (निबंध) नामवर सिंह
2)	सच्ची विरता (निबंध) सरदार पूर्णसिंह
3)	कफन (कहानी) प्रेमचंद
4)	चीफ की दावत (कहानी) भीष्म साहनी
5)	शरणागत (कहानी वृन्दावनलाल वर्मा
Unit - 3	पद्य विभाग
इकाई - 1)	कबीर के दोहे कबीरदास
2)	बाल-लीला सुरदास
3)	भक्ति, नीति के दोहे बिहारी
4)	वर दे, वीणावादिनी वर दे । सूर्यकांत त्रिपाठी 'निराला'
5)	हिमाद्रि तुंग श्रृंग से जय शंकर प्रसाद

Unit	Particulars	From
5	)बादल को घिरते देखा है नागार्जुन	
Unit - 3	पारिभाषिक शब्दावली वाणिज्य सम्बन्धी पारिभाषिक शब्द	
1)	Affiliated	
2)	Agriculture	
2)	Abreviation	
4)	Allowance	
5)	Indigenous Bank	
6)	Borrowing	
7)	Consignment	
8)	Expansion	
9)	Indemnity	
10)	Voyage etc.	
Unit - 5	कल्पना विस्तार	
1)	जैसा देश वैसा भेष ।	
2)	पराधीन सपने हूँ सुख नाही ।	
3)	जहाँ सुमति वहाँ नाना सम्पति ।	
4)	कर्म बिना सिध्दांन मिथ्या है।	
5)	नेत्रदान महादान	
6)	जो जैसा करता है वैसा भरता है ।	
7)	परिवर्तन ही गति है ।	
8)	साँच को आँच नाही ।	
9)	एकता में बल होता है ।	
10)	भय मनुष्य का सबसे बड़ा शत्रु है ।	

3 Marathi

प्रश्न क्र.	घटक क्र.	अभ्यासक्रम	गुण	शेरा
१	१	समकालीन राष्ट्रीय, सामाजिक समस्यावर आधारित (चार पर्यायांपैकी एका विषयावर, शब्द मर्यादा-४००)	२०	
२	२	गद्य विभाग : पाठ्य पुस्तक : भाषा दर्शन भाग एक १. लोकशाहीचे भवितव्य (डॉ. बाबासाहेब आंबेडकर) २. नौका (प. भा. भावे) ३. अस्पृश्यांचा आधारवड (शिवाजी सावंत) ४. बेगड (योगीराज वाघमारे) ५. उमा (वि. स. जोग)	३५	
३	३	पद्य विभाग : पाठ्य पुस्तक : भाषा दर्शन भाग एक १. ज्ञानेश्वरांच्या विराण्या (संत ज्ञानेश्वर) २. मन (बहिणाबाई चौधरी) ३. गणपतवाणी (बा. सी. मर्ढेकर) ४. गिरणीची लावणी (नारायण सुर्वे) ५. माउली भुकेले बेट (सुधाकर गायधनी)	३५	
४	४	व्यावहारिक मराठी १. पत्रलेखन २. इतिवृत्त लेखन	१०	

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

4 Supplementary English

Unit 1- Prose

1. A New Star Rises- Jawaharlal Nehru
2. Mahatma Gandhi- Louis Fischer
3. Jagdish Chandra Bose- Aldous Huxley
4. My Greatest Olympic Prize- Jesse Owens
5. Eating for Health- Rajkumari Amrit Kaur

Unit 2 - Poetry

1. Virtue- George Herbert
2. Solitude- Alexander Pope
3. How Sleep the Brave- William Collins

Non-Textual portion-

Unit 3 – Writing Skills

(A) Social Correspondence:

Letter of Congratulations, Letter of Condolence, Informal Invitation

(B) Writing Classified Advertisements

Unit 4 – Grammar

Spotting errors in the use of - (1) Articles (2) Subject-Verb Agreement

5 FINANCIAL ACCOUNTING - I

Unit – I

- An overview of basic of Book Keeping and Accountancy.
- Rules of Double Entry Account System.
- Preparation of Journal, Ledger, Cash Book, Trial Balance & Annual Accounts of Sole Traders.
- Accounting Concepts & Conventions.
- Accounting Standards :- Introduction, Need & Objectives, AS 1 to AS 10, Accounting Policies and their Discloser.

Unit – II

Hire Purchase Accounts (Excluding Installment System and Repossession of Assets)

Branch Accounts (Excluding Foreign Branch)

Unit – III

Unit – IV

Accounts of Co - Operative Societies. (Preparation of Cash Book and Trading and Profit and Loss A/c and Balance Sheet as per Maharashtra State Co - Operative Societies Act,1960)

Unit – V

- Consignment Account
- Joint Venture Accounts (Centralized & Decentralized Met

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

6 FUNDAMENTALS OF STATISTICS & COMPUTER

Unit – I

Computer Block diagram, functioning, generations, classification of computers, characteristics, limitations of computer. Computer memory: types of primary memory. Storage devices: Hard disk, optical disk (CD/ DVD), Flash memory cards, pen drive. Input devices: keyboard, mouse, joystick, light pen, scanners, OCR, MICR, Touch Screen, Bar code reader. Output devices: monitor, printers, classification of printers, plotters. Computer Software Types of software, Operating Systems- concept, need, and functions. Internet: Brief history, www, browsers, Internet services and applications.

Unit – II

Meaning, Scope, Importance, Functions and Limitations of statistics. Collection of data, Tabulation and Classification, Primary Data and Secondary Data Measures of Central Tendency - Mean, Median, Mode, Geometric Mean and Harmonic Mean.

Unit – III

Measures of Dispersion Standard Deviation, Mean Deviation, Quartile Deviation, Decile, Percentile, Range and its coefficient, co-efficient of variation and skewness.

Unit – IV

Correlation (Co-efficient, Probable Error, Test of Significance) (Simple series -Two way series), Rank Correlation.

Regression Analysis-Regression co-efficient & Equations (Simple Series only)

Unit – V

Business Mathematics:- Ratio Proportion, Percentages, Simple & Compound Interest, Profit/ Loss.

7 PRINCIPLES OF BUSINESS MANAGEMENT

Unit-I - Nature And Scope of Business: Meaning And Definition of Business, Characteristics, Objectives of Business, Classification of Business Activities, Industry, Commerce & Trade, Social Responsibility of Business Towards Different Groups. - Forms of Business Units: Sole Trader, Partnership, Joint Stock Company and Co-Operative Society – Meaning, Characteristics, Advantages & Disadvantages.

Unit-II - Management And Administration: Meaning and Definition of Management, Characteristics, Scope, Importance, Management And Administration, Management – A Science or Art. - Planning: Meaning, Nature and Characteristics, Objects, Process, Importance, Types, Components.

Unit-III - Decision Making: Concept, Characteristics – Importance, Process, Types of Decisions. - Organizing: Concept, Principles, Types – Line, Functional, Line and Staff, modern types of organizations- Project, Matrix, Formal and Informal Organization, Advantages and Disadvantages.

Unit-IV - Delegation of Authority: Meaning and Definition, Elements of Delegation of Authority, Advantages, Obstacles in the Process of Delegation. - Direction: Meaning, Nature, Importance and Techniques. - Co-Ordination: Meaning, Principles, Internal and External Co-Ordination, Methods of Achieving Effective Co-Ordination. Unit-V - Leadership and Morale: Leadership – Concept, Characteristics, Types and Qualities, Morale – Meaning, High And Low Morale, Measurement of Morale, Morale of Executive and Supervisors. - Control: Meaning, Characteristics, Need, Procedure, Types, Essential of Good Control System, Control Devices.

8 Business Economics

Unit – I Nature and Scope of Business Economics. A) Business economics meaning, Scope and objectives of Business economics, Nature and types of business decisions, Role and responsibilities of business economist, Role and social responsibility of business & business economist, Micro economics and macro economics definition, scope, Merits and Demerits. B) Theory of Consumption. 1. Law of demand, Demand determinants, Changes in Demand, Exceptions to the law of demand Geffen's paradox. Law of equ - marginal utility, Assumptions Limitations, Importance criticism of cardinal approach. 2. Indifference Curve – Concept, definition, Definition, Properties, Importance of indifference curve. 3. Elasticity of demand – Concept, kinds, definition Measurement of elasticity of demand, factors influencing elasticity of demand, Importance of elasticity of demand. 4. Demand forecasting: Meaning, Need, Importance, Methods of demand forecasting.

Unit – II Theory of Production and Cost 1. Production Function – Concept Definition, Types of products, Total Production, Average Production, Marginal production, Law of variable proportions, Assumptions, Limitations and Significance. 2. Isoquant curves, Definition, General properties of isoquant curves, Expansion path internal and external economic and diseconomies of scale, Ridge line. 3. Theories of population, - Malthusian theory of population, Optimum theory of population, Demographic Transition Theory of population and criticism.

Unit – III Theory of cost and Revenue and Markets 1. Law of supply & Criticism influencing factors of supply. 2. The concept of cost – Accounting Cost, Economic Cost, Opportunities Cost, Fixed Cost, Variable Cost, Direct and Indirect Cost, Real Cost, Explicit, 28 Implicit Cost, Money Cost, Total Cost, Average Cost, Marginal Cost, Selling Costs. 3. Revenues - Total Revenues, Average Revenues, Marginal Revenues and Relationship and Time Element. 4. Market – Concept, meaning, Definition, Classification of market structures, Type Firm, Industry, Meaning, objectives, difference between Industry and firm.

Unit IV :- Pricing of Products. 1) Perfect Competition definition, properties Price determination under perfect competition. 2) Monopoly -Definition, Properties, types, Price determination under Monopoly 3) Monopolistic competition, meaning, concepts, properties and Price determination under Monopolistic competition. 4) Price and output under oligopoly – indeterminate pricing and output price leadership, collusive oligopoly, Kinked demand curve. 5) Price discrimination – Meaning, Types, Conditions under which it is possible and profitable, importance, Concept of Dumping.

Unit V - Theories of Distribution 1) Modern Theory of Distribution of Rent. 2) Theory of rent – Recardian theory of Rent, Modern theory of Rent, Criticism, concept of Quasi Rent. 3) Theory of interest – Loanable Funds Theory of Interest, Liquidity Preference Theory of Interest, Criticism, Concept of gross interest net interest. 4) Theories of Profit – Uncertainty Bearing Theory of Profit, Dynamic Theory of Profit, Innovation theory of Profit, Criticism, Gross Profit, Normal Profit, Abnormal profit. 5) Theory of Wages – Nominal wages, real wages, Exploitation of labour, Marginal productivity theory of wages.

9 Company Law & Secretarial Practice (CLSP)

Unit – 1 - Corporate personality/ company - Meaning of a company, characteristics of a company, lifting the corporate veil, Kinds of company. - Formation, Incorporation and Promotion of a company - Stages in formation of a company, Duties of a secretary regarding Incorporation, Pre- incorporation contracts, Commencement of business. - Meaning and definition, Duties and liabilities of promoters, Importance of promoters. - Memorandum of Association and Articles of Association - Meaning and Definition of Memorandum of Association, Importance of Memorandum of Association, Contents of Memorandum Of Association, Alteration in Memorandum of Association, Meaning and Definition of Articles of Association, Contents of Articles of Association.

Unit – 2 - Prospectus - Definition of Prospectus, Statutory requirement of prospectus, Contents of prospectus, Demand Prospectus, Statement in Lieu of Prospectus, Misrepresentation in Prospectus, Consequences of Misrepresentation, Liabilities of Directors and Promoters towards misrepresentation. - Share Capital - Classification of share Capital, Meaning of Shares, Kinds of —

Shares, Issue of Shares. - Allotment of shares - Statutory restrictions and procedure on allotment of shares.

Unit -3 - Share holders and Members - Meaning of shareholder/ Member, Procedure to become a member, kinds of members. – Directors

Meaning of Directors, Appointment of Directors, Qualifications of Directors, Powers of Directors, Duties of Directors, Remuneration of Directors. - Managing Directors - Meaning of Managing Directors, Appointment of Managing Directors, Remuneration of Managing Directors, Qualifications of Managing Directors, Term of Managing Directors, Powers and duties of Managing Directors.

Unit -4 - Secretary - Meaning of Secretary, Definition of Secretary, Qualifications of Secretary, Duties of Secretary, Liability of company for secretary Acts. - Secretary & Correspondence - Correspondence with members- about allotment, call, forfeitures, transfer of shares - Company meeting - Statutory meeting, Annual Meeting, Extra ordinary meeting-- - Meaning, agenda, notice of meeting

Unit -5 - Report writing- - Essentials of good report, contents of statutory report, Progress report, Importance of reports. - Depositories and Dematerializations of securities - Meaning of depository, Procedure of Depository, Meaning of dematerialization of shares, Procedure of dematerialization of shares. - E- Governance and E- Filling - Meaning of E- Governance and E- Filling, Advantages of EGovernance and E- Filling - Procedure of E- Governance and E- Filling

B.Com-II

10 I st LANGUAGE - COMPULSORY ENGLISH

To be implemented from the academic session 2015-16 i.e. Summer 2016 Examination and onwards.

B. Com. Part II (Compulsory English) Full Marks -100 Text prescribed -BLOSSOM (An Anthology of Prose and Poetry)

11 II nd LANGUAGE - HINDI

Textbook titled –*Sahityavithika - II*‖ shall be prescribed HINDI textbook.

12 II nd LANGUAGE - Marathi

Textbook titled —Bhashadarshan - II‖ shall be prescribed

Marathi textbook.

13 Supplementary English

14 FINANCIAL ACCOUNTING - II

Unit – I

- Flotation of Joint Stock Companies and their Capital Structure.
- Accounting for Issue, Forfeiture of shares & reissue of forfeited shares.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Unit – II

- Annual or Final Accounts of Joint Stock Companies.
  (Excluding Managerial Remuneration)

Unit – III

- Final Accounts of Banking Companies
  (Preparation of Annual accounts as per Banking Companies Regulation Act 1949 as per amendment by RBI)

Unit - IV

- Final Accounts of General Insurance Companies.

Unit - V

- Profit Prior to Incorporation.
- Liquidation of Company.
- (Preparation of Liquidator's Final Statement of Account only)

15 COST AND MANAGEMENT ACCOUNTING

Unit – I

Cost Accounting :-

Meaning, Importance, Element of Cost, Cost-Absorption, Allocation of Overheads and Methods of costing, Difference between Cost Accounting and Financial Accounting.

- **Management Accounting :-** Meaning, Scope, Importance, and Limitations

of Management Accounting. Difference between Cost Accounting andManagement Accounting, Role of Management Accounting

Unit – II

Cost Sheet, Tender and Quotations. Reconciliation of Profit /Loss shown by

Cost and Financial Accounts

Unit – III

- Process Cost Accounting (Including Abnormal loss and Abnormal effectives, Joint Process Accounts)
- Contract Cost Accounting (One years contract for complete & incomplete contract)

Unit – IV

- Break -Even Point Analysis
- Ratio Analysis (Ratios related to Trading and Profit and Loss Account and Current Ratio, Liquid Ratio, debtors Turnover Ratio, Creditors Turnover Ratio, Working Capital Turnover Ratio)

Unit – V

- Fund Flow Analysis
- Business Budget (Cash Budget and Flexible Budget Only)

16 Business Communication

Unit I:

Business communication: concept, objective, elements, purpose & importance. Salient features & principles of effective communication. Types of communication, interpersonal, supervisory & grapevine communication, their characteristics. Public speaking: concept, principles, qualities & role of manager as

Public speaker, importance of humor. Business writing: Elements, do‘s & don‘ts,

layout of business writing. Sales letter, enquiry, order, complaint letter, commercial letter, interview letter, appointment letter & show cause notice.

Unit II:

Communication media: Types, characteristics, advantages & disadvantages of print media, audio visual & internet. Organizational communication: Salient features, benefits & effectiveness of Company manual, house journal, placement broacher, leaflets. Public relations: Meaning, objectives, principles. Functions & qualities of public relation officer, corporate image, communication with government.

Unit III: Word processing

Introduction, Creating document, Structure of Ms-word window and its application, mouse & keyboard operations, designing a document; formatting-selection, cut, copy, paste, Toolbars, Printing, Saving, Opening, Closing of document; creating a template; Tables, borders, textbox operations; Spelling and Grammar check, Mail merge, Envelope and label, protection of document, Change the view of document.

Unit-IV : Spreadsheet Package

Introduction To Ms-excel, Excel Toolbars and Operations, formatting Features, Copying Data Between Worksheets; Entering and Editing Cell Entries, Creation of Charts, Editing and Formatting Charts, Goal Seek, Auditing, Linking, Workbook, Database in Excel (Auto Filter, Advanced Filter, Sort, Form), Mathematical, Statistical and Financial Functions in Ms-Excel.

Unit- V : Power point

Working with Power point, Standard Toolbar, Formatting Toolbar, Drawing Toolbar, Moving the Frame, Inserting Clip Art, Picture, Slide; Text Styling, Send to Bank, Entering Data to Graph, Organization Chart, Table, design Template, Master Slide, Animation Setting, show and Presentation, Auto Content Wizard, Package for CD (pack & Go Feature).

17 MONETARY ECONOMICS

Unit : I

Money

- Evolution, meaning, definition, nature and functions of money.
- Types of Money (Metal, paper Plastic)
- Quantity Theory of Money and Criticism.
- Inflation, deflation, meaning, nature, Causes, effects, impact, remedial measures by RBI and role,
- Money Market Concept of Money market objective importance, Monetary policy and fiscal policy Concept - meaning, objectives need, importance, impact, recent charges/Trends

Unit : II

Banking

Commercial Bank – Evolution, Meaning, definition, functions, role, credit creation, investment policy, Limitations.

- Assets and liabilities and Management – (ALM) – Meaning objectives, balance sheet, importance, constituent, Ingredients of ALM
- Non-Performing Assest. – Meaning, Criteria and Causes.
- E-Banking & Core Banking – Meaning, nature, features, essential factors, Advantage & dis-advantages. ATM – (Automated Teller wachiues) Meaning, features. Merits and demerits credit cards (KCC) Plastic cards small cards, cheque cards, e-purse, laser cards – Meaning, features, Merits & demerits.
- Automated clearing Houses, online Banking, Advanced Ledger Posting Machines, MICR Technology – Cheques – clearing EFT (Electron fund Transfer) Internet Banking e-cheque ECS (Electronics clearing system)

Unit : III

Banks and Customers – Relationship and Services

- Introduction, meaning of customer, Bank & Customer relationship – Debtor & creditors, Trustee and Beneficiary, Agent and Principal, Baitec and Baitec special relationship.
- Opening, operating and closing of an Bank accounts, types – demat account advantages, role of demat partner. Buying and selling of demat securities.
- Methods of Calculating Interest Rates – on deposits, on loans advances, on cash credits on overdraft facilities - Banker Right & obligations.

Unit : IV

Central Bank

- Introduction, Meaning, objectives, functions, role – professional & regulatory organization & Management
- Credit Control – Meaning objectives methods :- Quantitative – Bank rate, open market operation, varying reserve requirement, credit rationing. Qualitative – Varying margin requirement, regulation of consumer‘s credit, Issuing directives to restrict bank advances and limitation.
- Monetary Policy and Reserve Bank – Meaning, objectives function, role, measures, impact discrete actions and rules cash Reserve Ratio (CRR) statutory liquidity Ratio (SLR)

Unit : V

Public Finance –

- Concept, Meaning, scope, importance – Principles of Public
- finance Theory of Maximum Social Advantages & their criticism.
- Taxation – Definition – Characteristics, cannons of taxation,
- Taxable capacity – Meaning, importance, theory of ability to pay tax & criticism factors influcing taxable capacity. Types of taxation – proportional, progressive and regressive taxation system Direct and in directs tax concept, meaning, objectives merits & demerits.
- Information Monetary fund – (IMF) Concept, meaning, objectives, need function, impact on economy.
-

18 Business and Industrial Law

Unit – 1

- **Indian Contract Act 1872-** Definition, Kinds and concepts of contracts. Offer and Acceptance Consideration -Capacity of parties -Free consent - Legality and objects of consideration -Void Agreements-Performance of Contact -Discharge of Contract and Remedies.

- **Patent Act- 2002-** Meaning, Objective and important Definition - Inventions not patentable -Patent office and power controller - Penalties.

Unit-2

- **The Indian Partnership Act, 1932 -**Concept of partnership -Test for determination of existence for partnership -Kinds of partnership - Registration, Effects of Non- Registration -Rights and duties of partners towards other partners -Authority of partner and liabilities towards third parties -Admission, retirement, expulsion of partners and their liabilities - Dissolution of the firm

- **The Sale of Goods Act- 1930 -**Contract of sale of Goods -Conditions and Warranties -Transfer of Property -Performance of contract of sale -Rights of unpaid seller

20/03/2021
Off. Principal,
S.S. Mantar College, Nagpur

Unit -3

- **Information Technology Act- 2000** -Meaning, objective and scope, offences and penalties adjudicating -Digital Signature and Electronic Governance -Offences and penalties

- **Right to Information Act-2005** -Important Definition, aims and objects of Right to information Act -Request for acquiring Information and procedure regarding information -Charges for supply of information -Appeal Officers -Consequences of non supply of information -Format of complaint application

Unit-4

- **The Consumer Protection Act** -Salient Features of Act -Definition-Consumer, Complaint, Services, -Defect and Deficiency, complaints -Rights and relief's available to consumers -Procedure to file complain -Consumer Disputes Redresser Agencies -Procedure followed by Redresser Agencies

- **Environment Protection Act- 1986** -Meaning, objective and scope -Power of Central Government to protect and improve Environment -Location of Industries, Process and Operations -Offences and penalties

Unit- 5

- **The Indian Factories Act- 1948** -Important Definitions -Provisions regarding workers Health -Provisions regarding safety of workers -Rules regarding Labor welfare -Provisions regarding Adults, Women workers and young workers

- **The Industrial Disputes Act-1947** -Important Definition -Authorities for the settlement of Industrial Disputes -Work procedure of different authorities and their powers and responsibilities -Duties of Conciliation officer and board -Duties of court of enquiry -Strikes and Lock out

B. Com. Part-III

19 Financial Accounting -III

Unit-I

Amalgamation and Absorption of Companies.

Unit – II

Reconstruction of Companies. (Internal and External Reconstruction of Companies)

Unit – III

Accounts of Holding Companies. (Excluding Right Issue & Bonus Issue)

Unit - IV

Valuation of Goodwill and Valuation of Share

Unit - V

Fire Insurance Claims. - (Excluding Computation of Loss of Profit) - Accounts of Public Utility Companies (Electricity, Gas and Water Supply Companies) According to Double Accounting System.

20 Income Tax and Auditing

Unit – I: -

Auditing: Nature of Auditing, Meaning & Definition, Objectives, Advantages, Principles, scope and Limitations of Auditing .Types of Auditing—Continuous Audit, Annual, Periodical Audit, Internal Audit - Definition, objectives, Advantages, Basic Principles of Internal Audit, and Auditor. - - Audit Planning and Documentation: Commencement of New Audit, Preparation for Audit programme, Objectives, Types of Audit programme, Advantages and Disadvantages of Audit programme.

Unit – II : -

Auditing Techniques: - Vouching- Meaning, Need for Vouching, Procedure of Vouching, Vouching of Cash Book, vouching of subsidiary book, Vouching of Ledgers. - Basic Concepts of Income Tax Assessment Year, Previous Year, Meaning & Definitions, GTI, Difference between Exemption & deduction, Capital & Revenue Expenditure. Due Dates of Filing return by different Assessee. - Introduction of Five Heads of Income Tax & theory Salary, House Property, Income from Business & Profession, Capital Gains & Income from Other Sources. - Residential Status and its effects on Tax incidence (Residential status of Individual, HUF, Firm & Association of Person, Company, Basic Conditions & Additional Conditions. (Theory)

Unit-III : -

Income from Salary Types of allowances (Taxable & Tax free), perquisites, and Tax treatment of P.F, E.P.F., Superannuation Fund, Allowances & Perquisites, Computation of Income from Salary and Calculation of Tax Liability. (Problems) - Deduction under section 80C, 80CCC, 80CCD, 80D, 80DDB, 80E, 80G, 80GG, 80U. 32

Unit-IV: -

Income from Business and profession Definition & Meaning of Business, Business deduction and allowances, maintenance of accounts by certain persons, Special provisions under section 44 AD and 44 AE, Depreciation U/S 32, Computation of income from business. Computation of Total Income of Individuals. (Theory/Problems). 33 - Tax Return Preparers Scheme 2006 (section 139 B) Definition of Tax Return Preparers (TRP), Educational Qualification, Duties and Responsibilities of Tax Return Preparer, Preparation and Submission of Return of Income by TRP, Remuneration of TRP, and Information related to TRP, Function and Restriction of

20/03/2021

Off. Principal,
S.S. Maniar College, Nagpur

assesses in relation to Tax Return Preparers scheme. (Theory) Unit-V: - Income House Property -Meaning & Definition, Gross Annual Value Net Annual Value , Arrears of Rent ,Unrealized Rent, Interest on Loan Preconstruction & Post Construction, Composite Rent etc. Computation of Income from house property. - Income from Other Source – Basis of Charge, Chargeable Incomes, Exempt Incomes, Computation of Income from other sources. - (Income Tax Calculation – Rates applicable for respective Assessment year* Education Cess.) (* N. B.- Current Academic year will be the Assessment. year)

21 Functional Management

U n i t - I

Unit-II

Functional Management Human Resource Function:- - Human Resource Philosophy (Concept Scope Role and functions of HR) Human Resource planning , Recruitment , Selection, placement , Induction Training and deployment, Compensation, Job evaluation . Marketing Function:- - Evolution of Modern concept of Marketing Market Segmentation, Basis for Segmenting consumer and industrial market, Product planning and deployment, pricing policies and strategies. Channels of Distribution.

Unit-III

Finance Function:- - Scope and Importance of Financial Management, Functions and Role of Financial manager, Sources of capital, cost of capital.

Unit-IV

Production Function:- - Meaning Nature scope and Importance of production Management. Production process, production planning and control, product Design and product Research. Unit-V International Business Environment:- - Globalization – Introduction, Significance, Nature and Scope of Global Business, Social Cultural Economic, Political and Ecological factors of Global Business Environment.

22 INDIAN ECONOMICS

Unit I

Indian Economy & Planning - Economic Planning:- Characteristics Rational features, Objectives, evaluation of the objectives of economic planning and recent five year plan. - Strategy of India‘s development plans: 10th th , 11 plan - The employment perspectives in 1th plan. - Resources allocation and financing of five years plan :- way to Increase revenue and control expenditure. - Regional planning in India – aspects of regional planning – conceptualization, Magnitude, Regional and lack of gerunie regional planning in India. Ass essment of India planning – Basic approach, targets and achievement an appraisal. - Achievement and short comings of Economics planning.

Unit II

Indian Economy & policy - Concept of economic growth of Economic Development Characteristics of underdeveloped/Developing countries - Broad features of Indian economy - Natural resources – Land, soil, water, forest, mineral. - Infrastructure – sources of energy in India. Power, coal, oil and Gas, Atomic, Non-conventional, Energy strategy. Transport system in India – Railways, Road, Water, Air Transport. - India‘s population: Size and Growth trends future, causes and consequences on economic development, Explosion, remedies, population policy. - Employments and unemployment :- Trends, structure, employment in India, Nature and estimates of unemployment – urban, rural, agricultural unemployment, causes, government policy for removing unemployment and Sectoral Issues

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Unit III

Indian Agriculture - Nature, Role of Agriculture in India economy - Cropping pattern in India and its determining factors. Crop insurance and live stock insurance – problem and Remedies - Progress of Land reform, cooperative farming - Green resolution: impact and constraints. - Trends in Agricultural Production and Productivity law levels and causes of law productivity, measures to increase production and productivity. - Agriculture marketing and finance – Need and sources, agriculture finance, co- oprative credit societies. NABARD (National Bank for Agriculture and Rural Development) Financial inclusion. - Agriculture Marking Concept Meaning Advantage, Disadvantages, problems, remedies, and Government measures to improve the system of agriculture Marking cooperative marketing. - Agricultural price policy – Trends, Need, Agriculture, subsidies, Public distribution system in India. Targeted public distribution system (TPDS) - Agricultural Labour :- Definition, conditions and problems, Measures adopted by the Government, Measures for improvement. Indian Industry- Industrial policy 1991 some major Industries – Iron

Unit - IV -

Steel , jute, Textile, sugar, cement - Small scale and cottage industries – Definition, role, performance, importance problems, and remedies - Public sector industries : Role, Performance, importance, Problems, and remedies - Privatization of Public sector industries: meaning, methods, Evolution of privatization policy in India. Process from disinvestment and methodologies adopted and a critique of privatization and disinvestment - Private sector industries Meaning Role importance, problems and remedies. - Industrial sickness in India – Definition, causes, consequences, remedial measures - Service sector: Growth, contribution of services sector in India, rapid service growth share services in employment. - Indian trade union movement: Concept and Meaning, Role and functions, strength and weakness.

Unit V

India's International Trade - Foreign Trade and foreign capital :- Concept and Meaning, advantages, disadvantages, Composition and direction export policy and import policy. - Special Economic Zones:- Concept history, benefits, arguments against SEZS, EGOM, Decision on SEZS and impact on Economics. - Foreign capital and Aid:- Need, role, problems , non – resident deposits, India's external debt. - Multinational corporation, Concept:- Role, importance, advantages and disadvantages of MNC's and control over MNC's, impact on economy. - Liberalization, privatization, Globalization meaning, importance, Role and steps forwards LPG, effects, and impact on Indian economy. - World Trade Organization (WTO) :- Objective, working and functions and Role - Public Expenditure – classification, Role, increasing causes of Public Expenditure. - Public debt Meaning, Concept Meaning, Classification, Role, problem and remedies.

23 Business Finance

U n i t -I –

Meaning, Nature, Significance, Objects and Scope of Business Finance,Recent Development and Reform in Finance Sector. -Sources of Business Finance, Long- Medium and Short Term, Capital Market, Primary Market and Secondary Market.

Unit – II –

Role and Functions of Stock Exchange and SEBI. Project Financing, Venture Capital Financing, International Finance, Euro Issue, External Commercial Borrowings, Financing and Management of Small and Medium Enterprises.

Unit – III –

Meaning of Working Capital, Types, Determinants, Assessment of Working Capital Requirement, Operating Cycle. Inventory Management, Debtors Management and Creditors Management.

Unit - IV –

Dividend Policy, Essentials of Sound Dividend Policy, Determination of Dividend Policy and its types. Surplus and Reserve Policy. Cash Flow for Investment Analysis.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Unit – V –

Capital Budgeting :- Meaning, Nature and Types of Capital Budgeting, Investment Appraisal Techniques, Pay Back Period Method, Rate of return method, Net Present Value Method, Discounted Cash Flow Method, - Leverages -Concept of Leverages, Operating and Financial Leverages.

24 Computerized Accounting

Unit-I –

Introduction to Accounting, Advantages of accounting, Books of accounts, Classification of Accounts, Financial Statements, Inventory management, Computerized Accounting, Need of Computerized Accounting, Accounts Organization, Accounts group, Loans Liabilities, Assets and Budget.

Unit-II - Accounting Software_s Introduction to tally Software, Features of Tally Screen, Company information, Creating new Company, Gateway, Selection of Company, selection of Options, Buttons at Gateway, Working with multiple Companies, Company Features.

Unit-III –

Configuration- General, Numeric Symbols, Voucher Entry, Creation of Voucher Screen, invoice Order Entry, Printing. Accounts info menu, Account Groups-create new group, creation of primary group. Normal and advance information, Ledger Accounts, cost categories, Cost Centers. Creation of Budget, Types of budget. Unit-IV - Voucher- Voucher Entry, creation of Vouchers Screen, types of Voucher, Selection of Voucher types, Post Dated Voucher, printing of Vouchers, Cheque Printing, advance Features of account Voucher. Inventory info, Features of Inventory info. Configure- Inventory Info, balance Sheet, Audit Trail, Ratio Analysis.

Unit-V –

Display-Accounting Report Display, Inventory report Display, and MIS Report Display. Printing Reports, Export of Data. Maintenance- Bank Reconciliation, House Keeping, Data Maintenance. Security- Users and Password, Security Controls, Types of Security, Creation New Security Levels and Tally Audit.

B.Com. (Computer Application) Part-I

25 English and Business Communication

Unit I:

Comprehension, Enriching Vocabulary, Single Word For a Group of Words, Words Frequently Misspell.

Unit II:

Business Letter Writing, Getting to the point, Choice of Words, Punctuation, E-mail etiquette.Enquiries and replies - Placing and fulfilling orders - Complaints and follow-up - Sales letters -Circular letters - Application for employment and resume.

Unit III:

Nature, Scope, and Functions of Communication: Definition, Objectives, Purpose of Communication, Communication Process, Sender's Thoughts, Encoding, Decoding, Feedback Loop, Noise Channels of Communication, Informal Channels Of Communication, Barriers to Effective communication.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Unit IV:

Textbook entitled 'Prism: Spoken and Written Communication, Prose & Poetry' published by Orient Longman

The Bet – Anton Chekov

Socrates and the Schoolmaster – F. L. Brayne

An Astrologer's Day – R. K. Narayan

The Gift of the Magi – O' Henry

With the Photographer – Stephen Leacock

26 Principles of Business Management

Unit I:

Introduction - Nature, function, definition and importance of management, Definition, nature, purpose and scope of management, Functions of a manager, an overview of planning, organizing and controlling, is management a science or art?

Unit II:

Development of Management Thought - Scientific management; Contribution of Taylor, Fayol, Mary Follet, Elton Mayo; Hawthorne experiments, Contingency approach, Indian heritage in production and consumption.

Unit III:

Management and Administration - Management and administration, Management as a profession, Professionalism of management in India, Management ethics and management culture, Skills required of manager, Classification of skills, Methods of skills development.

Management Planning - Concept of planning, objectives, Nature, Types of plan, Stages involved in planning, Characteristics of a good plan, Importance, Limitations of planning, Making planning effective, Strategic planning in Indian Industry.

Unit IV:

Decision Making - Concept, characteristics of decisions, Types of decisions, Steps Involved in decision making, Importance of decision making, Methods of decision making, Committee Decision Making.Organisation - Concepts, Principle of organization, Importance, Features of good organization structure, Types of Organisation structure.

27 Financial Accounting

Unit –I:

Introduction - Meaning, Scope and importance of Financial Accounting. Financial Accounting - concepts and conventions, classification of accounts, Rules and principles governing Double Entry Book-keeping system.Accounting Books & Record - Meaning, Preparation of Journal, Ledger& Trial balance. Accounting Standards - introduction, Need & Objectives, AS 1 to AS 10, Accounting Policies and their Discloser.

Unit II:

Final Account of Joint Stock Companies - Final Accounts of Joint Stock Companies – contents, and preparation of Trading and Profit and Loss Account, Profit and Loss Appropriation Account and Balance sheet with adjustment,Closing Entries (Simple entries).

Unit III:

Accounting for Non-profit making institutions: Introduction for non-profit making institutions, receipt and payment account, income and expenditure account, preparation of final accounts of non-profit making institutions.

Unit IV:

Issue of Shares: Entries for issue of shares, Issue of shares at discount and premium, forfeiture and re-issue of forfeited shares.

28 Information Systems

Unit-I:

Introduction to IT and Computers, Block diagram of computer, functioning of computer, generations of computer, classification of computers, characteristics, advantages & limitations of computer. Computer organization: Central processing Unit - speed of processor, computer memory: primary & secondary, types of primary memory, registers. Storage devices: floppy disk, Hard disk, magnetic tapes, optical disk (CD/ DVD), solid state storage (Flash memory cards, pen drive, etc.). Input devices: keyboard, mouse, joystick, light pen, scanners, OCR, MICR, Touch Screen, Bar code reader. Output devices: monitor, printers, classification of printers, impact & non-impact printers, dot matrix, ink jet, laser, thermal printers, plotters.

Unit-II :

Hardware & software, Software and programming languages. Introduction, types of software, characteristics of good program, development of programming languages-machine language, assembly language, high level language.

Data representation: Binary, decimal, Octal, hexadecimal number systems, features & conversions, BCD, EBCDIC & ASCII codes.

Unit – III:

File Concept, Types of Files, Organization of Files, Data Processing. Factors affecting File Organisation, Data capture techniques.

Computer communication, wireless communication, need for networks, forms of data communication

– analog, digital; data transmission modes, data transmission media (Twisted pair, co-axial, Fibre Optic, Microwave, Satellite communication), Bandwidth- Narrow, voice, board band, Protocols, modems, Multiplexing, Types of network-, LAN, WAN, MAN, concept of Network topology, types of topologies, advantages & limitations .Type of networking: Telephone network, ISDN, LAN, MAN, WAN AND VAN; networking topology; OSI Model.

Unit – IV:

Concept of E-Commerce and Internet, Brief history and development of internet, WWW, Internet architecture – servers, browsers, URL; service providers – shell account, TCP/IP internet services and application – E Mail, education, financial service, e-Commerce, banking, shopping, advertising, e-governance.

Application of Computer: Business and Industry, CAD/CAM graphics, Office automation, scientific application, process control, computer, computer audit, simulation.

Virus, Types of Viruses, Anti-Virus, Firewall and Anti-Spy ware Utilities

29 Information Technology

Unit –I :

Word Processing: Introduction, Starting word, Creating document, Structure of Ms-word window and its application, Mouse & keyboard operations, designing a document; formatting-selection, cut, copy, paste, Toolbars, operating on text; Printing, Saving, Opening, Closing of document; creating a template; Tables, borders, textbox operations; Spelling and Grammar check, Mail merge, Envelope and Label, Protection of document, Change the view of document.

Unit-II :

Spreadsheet Package: Introduction To Ms-Excel, Navigating, Excel Toolbars and Operations, Formatting Features- Copying Data Between Worksheets; Entering and Editing Cell Entries, Creation of Charts, Editing and Formatting Charts, Goal Seek, Auditing, Linking, Workbook, Database in Excel (Auto Filter, Advanced Filter, Sort, Form), Mathematical, Statistical and Financial Functions in Ms-Excel.

Unit-III :

PowerPoint Presentation: Working with PowerPoint Window, Standard Toolbar, Formatting Toolbar, Drawing Toolbar, Moving the Frame, Inserting Clip Art, Picture, Slide; Text Styling, Send to Back, Entering Data to Graph, Organisation Chart, Table, Design Template, Master Slide, Animation Setting, Saving and Presentation, Auto Content Wizard, Package for CD (Pack & Go Feature).

Unit-IV :

MS-Access : Introduction to database management system, DBMS vs RDBMS, Database Administrator (DBA) and its role.

Introduction to Microsoft Access, creating a database in access, using database wizards and blank database, creating table, database view and design view, creating queries, forms, reports and macros in ms-access.

30 Introduction to Operating System

UNIT – I:

Introduction to Operating System, definition, need, functions, types of operating system, simple batch system, multiprogramming , time sharing system, parallel system, distributed systems, real-time system, multiprocessing, on-line and off line processing, multitasking, virtual memory management.

UNIT – II:

Introduction to Disk Operating System (DOS)

File types, Directory Structure

Booting - Warm and Cold Booting

Types of DOS commands (Internal and External)

Introduction of Autoexe and Config files.

Directory commands: DIR, MD, RD, TREE, PATH, SUBST ETC.

Wild card Definitions

Commands related to file management: COPY, DEL, ERASE, REN, ATTRIB, XCOPY, BACKUP and RESTORE .

General commands: TYPE DATE, TIME, PROMPT etc.

batch commands, wild card characters & its use.

Unit – III:

Introduction to Unix overview

File systems and structure of directories and file

File Oriented Commands – Cat, op, In mv, rm etc.

File Permissions

Directory Oriented commands – ls, mkdir, rmdir, cd, pwd etc.

Inter user connection commands – write, mail, used, at, wall etc.

Common commands – skill, date, wo, sleep, who ps.

Unix Utility Commands – grep, pr, cut, paste, sort, lp shutdown, halt, sys, tar, find etc.

Introduction of Linux.

UNIT – IV:

Introduction to windows Operating System, advantages of windows operating system, using different windows applications simultaneously, operating with windows, GUI, use of help features, starting an application, essential accessories, creating shortcuts, windows explorer, control panel, my computer, my documents, recycle bin, finding folders and files, changing system settings, system tools, use of run command, setting peripherals, drivers, editing graphics in windows, new features in windows XP/Vista versions.

Introduction to Mobile Operating System

31 Practical – I: Microsoft Office

The Practical should be based on MS-Word, MS-Excel, MS-PowerPoint and MS-

Access.

32 Practical –II: Operating System

The Practical should be based on MS-DOS, Unix, Shell Script, Windows.

B.Com. (Computer Application) Part-II

33 Statistics and Quantitative Techniques

Unit I:

Descriptive statistics – Definition, functions, scope and role of statistics in business, Importance of statistics, distrust and limitations of statistics.

Unit II:

Presentation of statistical data – classification; tabulation; frequency distribution; diagrams & graphs.

Statistical average - importance and requisites of a good statistical average; types of averages – arithmetic mean, median, mode, geometric mean and harmonic mean, weighted average, relationship amongst different averages.

Unit III:

Dispersion - meaning and significance of dispersion; methods of measuring dispersion – range, quartile; mean deviation, standard deviation, Co-efficient of Skewness, Lorenz Curve.

Correlation and Regression (Simple)- Types of correlation, Calculation of Co-efficient of Correlation for Simple Series, Calculation of Co-efficient of Correlation for Continuous Series; Regression Equation of X on Y, Regression Equation of Y on X

Unit IV:

Quantitative Techniques – An introduction: Classifications of quantitative techniques; applications of quantitative techniques to business and industry; limitations of quantitative techniques.

Numerical shall be based on Unit II and Unit III.

34 Business Economics

Unit I:

Nature and fundamental concepts and basis techniques of Business economics - Analysis of Demand, Significance, estimation of demand; Elasticity of Demand, Techniques and Importance of Demand forecasting; Basic Mathematical Problems related to demand estimation and elasticity of demand.

Unit II:

Production & Cost Analysis - Production & Production Function: Concept, Forms of production function, Law of variable Proportions, Returns to scale. Cost concept, Short term and long term cost output relationship, Cost curves, Economies of scale.

Objectives & Equilibrium of the Firm - Market Structures- Perfect Competition, Monopoly, Monopolistic Competition & Oligopoly - kinked demand curve and cartels, Mathematical Problems on profit maximization and Price & Output determination under various market structures.

Unit III:

National Income Accounting - Concept & measurement; Determination of Income & Employment; Concept of multiplier; Inflation and Deflation, types, causes and control of inflation.

Unit IV: Macroeconomic policy - Monetary and fiscal- objectives and Instruments; Effectiveness of Monetary & Fiscal Policy with respect to Indian Economy.Business cycles - Concept, Causes & Impact, Measures to control Business cycles.

35 Cost & Management Accounting

Unit I :

Meaning, Definition, Scope, and Importance of Cost Accounting – Elements of Cost, Cost Classification, Preparation of Cost Sheets, Tenders, and Quotations. Methods of Cost Allocation and Absorption (Simple Problems on Operating Costing - Transportation only).

Unit II :

Reconciliation of Profits Shown by Cost and Financial books. Marginal Costing - Break Even Analysis, Concept and Applications. Process Costing(Up to Abnormal Loss and Abnormal Effectiveness).

Unit-III:

Meaning, objects, advantages, importance tools and techniques of management accounting. Distinction between Financial Accounting, Cost Accounting and Management Accounting.

Ratio Analysis – Meaning, nature, analysis, significance & limitations of ratio analysis. Ratio as tools of interpretation of financial statements.

Computation of ratios – Gross profit ratio, net profit, net profit ratio, operating net profit ratio, operating ratio, expenses ratio stock turn-over ratio, current ratio, liquidity ratio, debtors turn-over ratio, creditors turnover ratio, fixed assets turnover ratio, debt equity ratio, earning per share.

Unit-IV:

Break even analysis – Meaning, need, importance & limitations.Computation – Profit volume ratio, breakeven point, margin of safety, estimated sales for required profit & estimated profit for given sales.

Fund flow statement – Meaning, concepts, importance & limitations, preparation of fund flow statement, Business budgets and budgetary control – Types of budget and its utility, preparation of cash & flexible budgets.

36 Programming Skills ('C' Programming)

Unit –I:

Programming Logic:Problem Analysis, Process Analysis, Conceptual Development of solution. Development Tools : Algorithm & Flowchart Translator : Interpreter, Compiler Introduction to C : History of C Language, C Character Set, Data Types, Constant & Variables, Type Casting, Type Modification, Operators in C, Input/Output Function in C.

Unit –II:

Control Statement :If, If…Else, While, Do….While, for, goto, switch…case, break, continue, exit statement. Arrays : Array Definition, One dimensional array, two dimensional array, searching, sorting, inserting, deletion, process in arrays, Addition & Multiplication of two dimensional array, Storage Class : Automatic,Register, Static, External Storage Class.

Unit –III:

String Handling:String library function. Structure and Union : Introduction to structure and union, Declaration, initializing structure, accessing structure elements, array of structure.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Function :Library functions, user defined functions, function prototype, types of user defined function, function with arrays, function with structure.

Unit –IV:

Pointers:Introduction to pointers, Arithmetic operations on pointer variables. Pointer with array.Pointer with structure, Function call value and call by reference.

File Processing : Introduction, stream and files, opening and closing files, file opening modes, text mode, binary mode, more on file handling functions.

37 E-Commerce and Web Designing

Unit –I :

E-Commerce: Introduction, Definition, Benefits of E-Commerce, Impact of E-Commerce on business models, Traditional Commerce Vs E-Commerce, Advantages and Disadvantages of E-Commerce, Electronic Commerce and the Trade Cycle.

Electronic Market : Usage, Advantages and Disadvantages and its future.

Electronic Data Interchange (EDI) : Introduction, Benefits, Trade Cycle and Example.

Internet Commerce :Introduction, Internet Trade Cycle and example, Internet Security : Secure Transaction, Privacy issues, computer crimes and its type, Security Issues : Security threats like damage to data, loss of data and unauthorized use of data, Security Procedure : Firewall, Encryption, Password, Access Control List, Digital Certificate.

Unit –II :

Creating Static Web Pages with HTML: Introduction, Designing web site, Advantages and Disadvantages of HTML, Flow of Web Information, Role of Web Browser and Web Server, Process of Web Publishing,

Creating a Simple Static Web Page : About HTML, Basic elements : <html>, <head>, <title>, <p>,

, <h1> to <h6>, <ol>, <ul>, <li>, <dl>, <pre>, <marquee>, <hr>, Physical and Logical tags Path :

Relative and Absolute path, Comments, Special Characters, Text Formatting tags,

Adding Links, Images, Background and Table : Hyperlinks <a href …>, Cerating links to web pages and URLs, Creating links within the same page, various types of URLs that can be used in links, Image tag and their related attributes, Inline images, Links to (external) images, Using Inline images, Using images as hyperlinks, Popular images formats for internet and HTML.

Tables :Basic tabletags and their related attributes.

Unit –III :

Frames and Embedding Multimedia: Frames, Image Map and Web Font Creator : Frames and their creation, the <Frame> and <Frameset> tags, Fram linking, Floating or Inline Frames, Image Maps <map> and <area> tags, Client – Side and Server – Side image maps.

Form designs, Form Controls, Text controls, password fields, radio buttons, checkboxes, reset and submit buttons, form control selection, option processing and textarea.

Embedding Multimedia : Introduction, Embedding Multimedia, Inserting sound/audio formats, video file formats.

Unit –IV :

Cascading Style Sheets (CSS) and XML: CSS : Defining style sheets, features, adding style to document, Linking to a single sheet, Embedding style sheet, Using inline style, Style sheet properties, Font properties, Color and Backgournd properties, Text properties, Box properties.

XML : Introduction, XML and SGML, Design goals of XML, Application of XML: Document Application, Data Application, XML Software : Browsers, Editors, Parsers, Processor, XML tags, Structure of XML documents, XML element tags, Element markup, Attribute markup, HTML document, adding scripts, Data types in XML , XML Namespaces : Qualified name and Unqualified names, Namespace scope, default name space, working with text and font : Font, Font Size, font style, text alignment, text indent, line height, color and Background Properties : Foreground color, Background color, Border color, Background image, Working with DTD : Introduction, HTML and DTD, Benefits of the DTD, Structure of DTD, Declarations of variable in DTD : Element name, Occurrence indicators, Connectors.

38 MIS AND SYSTEM ANALYSIS

UNIT-I:

System Concept, definition, system approach, characteristics, System Elements – Input, Output, Environment, Boundary Interface, feedback, Control. Types of systems, Business as system. Data vs information, information and decision making, Value of information, quality of information. Introduction to MIS, definition, need, objectives, benefits, functions, characteristics.Structure of MIS, information requirements at various levels of Management Activities.MIS vs data processing. Types of MIS: TPS, OAS, DSS, Expert system (organization, features & advantages)

Functional MIS for marketing, finance, human resource, production & service industry.

UNIT –II :

System development life cycle(SDLC) concept & stages. Need identification, determining user's information requirements. Information gathering - Sources & Methods (Interviews, questionnaires, observation, document analysis). System analysis, planning approach- elements, objectives, constraints , feasibility study, Tools of data recording, DFDs, data dictionary, decision tree, decision table, cost benefit analysis.

UNIT –III:

Output input design, form design, process design, process specification, file design, program design, module integration, storage requirement ,selection of hardware and software, software controls, system flow chart, user view of processing, modeling input output data. Procedure design, design documentation, user feedback, Project planning& control.

UNIT –IV:

Testing and Implementation

Testing: Code testing, specification testing, types of tests, verification and validation systems security and privacy, control measures, disaster recovery plan, system audit, Documentation : user's, System , operations manual, Role and qualities of system analyst as a change agent. Implementation – Methods of change over, transition and conversion, change management, user training. Post implementation maintenance & review.

39 Practical – I : Programming Skills

The Practical should be based on all the units of Programming Skills

40 Practical –II : Web Designing

The Practical should be based on Unit-II, Unit-III and Unit-IV of E-Commerce & Web Designing.

B.Com. (Computer Application) Part-III

41 Business Law

Unit I:

Legal Framework for business entities- Introduction to legal aspects of Business in general; Need and importance of Business Laws.

Indian Contract Act, 1872 – Definition of Contract, Agreement, Offer and Acceptance, Essentials of Valid Contract, Performance of Contract and Breach of Contract.

Unit II:

Indian Joint Stock Companies Act, 1956- Definition of a Joint Stock Company, Kinds of Companies, Formation of Company, Memorandum of Association, Articles of Association, Prospectus, Company Meetings, Liquidation of a Company.

Unit III :

Indian Partnership Act, 1932- Definition of Partnership, Kinds of Partners, Partnership Deed, Registration of a Partnership Firm, Rights and Duties of Partners, Liabilities of Partners, Dissolution of a Partnership Firm.

Unit IV:

Information Technology Act 2000 & Cyber Law - Scope, Provisions & overview, IT Act and E-mails, Strategy to Combat Cyber Crime

Consumer Protection Act, 1986- Definitions, Category of the term Consumer, Rights of Consumer, Consumer protection Councils, Remedies & Relief available to the consumer.

42 Auditing & Income Tax

Unit I:

Auditing: nature of auditing, meaning & definition, objective, advantages, scope, and limitations. Types of Auditing – Continuous Audit Annual, Periodical, Audit, Internal audit – definition objectives advantages basic principle of internal audit, internal audit and auditor(check).
Audit planning & documentation : commencement of new audit, Preparation for audit program, objectives, types of audit program, advantages & disadvantages of audit program, principles of auditing & audit Techniques, Routine checking and vouching Test checking vouching, need for vouching, procedure of vouching, vouching of cash Book, vouching of subsidiary Book, vouching of ledgers.

UNIT – II

Feature of company Audit : Appointment of auditors, remuneration, removal, rights and duties of company auditors, audit committee, audit of items of financial statements.Audit Report & certificate : Distinction between reports and certificates contest of audit report, qualifications of auditors, audit reports of companies, special audit of Banking & insurance companies, nature and significance of cost audit,tax audit and management audit.

UNIT – III

Definition, concept of income ,Residential states (theory), Distinction between capital and Revenue receipts, Income from salaries, computation of taxable income from salary.

UNIT – IV

Income Exempt from tax, Income from House property ,Income from other sources ,Pan and tax (Meaning)

43 Software Product and Project Management

Unit-I:

PROJECT MANAGEMENT

The Management Spectrum, The People, The Product, The Process, The Project

Project Manager – Role & Responsibilities

Project Estimation – Introduction, Decomposition Techniques – Software sizing, Problem Based Estimation, LOC Based, FP Based estimation

Project Scheduling – Basic Concepts, Project Scheduling, Basic Principles, The relationship between People & effort, Effort Distribution, Defining a task network – CPM/PERT, Gantt Chart.

Unit-II:

SOFTWARE TESTING STRATEGIES

A strategic approach to software testing – Verification & Validation, Organizing for software testing.

Test Strategies for conventional software – Unit Testing, Integration Testing.

Test Strategies for object-oriented software – Unit Testing, Integration Testing.

Validation Testing – Test Criteria, Configuration Review, Alpha & Beta Testing.

System Testing – Recovery, Security, Stress & Performance Testing.

The Art of Debugging – The debugging process, Psychological consideration, Debugging strategies, correcting the errors.

Unit-III:

RISK MANAGEMENT

Introduction

Software Risks

Risk Identification – Assessing overall project risk, Risk Components & Drivers

Risk Projection – Developing a risk table, Assessing Risk Impact

Risk Refinement

Risk Mitigation, Monitoring and Management

The RMMM Plan

Unit-IV:

QUALITY MANAGEMENT

Quality Concepts – Quality, Quality Control, Quality assurance, Cost of Quality.

Software Quality Assurance – Background issues, SQA Activities.

Formal Technical Reviews – The Review Meeting, Review reporting & record keeping, Review guideline

Statistical Software Quality Assurance – A generic example, Six sigma for software engineering.

Software Reliability – Measure of software reliability & Availability, Software safety.

ISO 9000 Quality Standard

44 Front End Development

Unit –I:

Introduction to Visual Basic, Event driven programming, Programming constructs - Variables, Types of Variables, Data Types, Scope of Variables, Constants, system defined functions, Operators (Precedence and Associatively), Creating User Interface, VB Controls (Label, Text box, Command button, Frame, Check box, Option button, List box, Combo box, Timer, Drive list box, Directory list box, File list box, Horizontal and vertical scroll bars, Image, Picture box, Shape, Line, Data, OLE container), Microsoft windows common controls (Tab Strip, Tool bar, Status Bar, Progress Bar, Tree View, List View, Image List, Slider, Date Picker, Month View), adding controls to a form, adding controls at run time,

Unit –II:

Working with Procedure, Function and Modules (Form, Class, Standard Modules), Scope of Procedures, Calling Procedures, Calling Functions, Passing Arguments,

Control Structures : If-Then, If-Then-Else, Select Case, Loops Structures : Do-While, While - Wend, For-Next, For-Each, With-End With.

Arrays : Declaring an Array, Types of Array (Fixed arrays, Single-dimensional arrays, Multidimensional arrays, Dynamic arrays), Control Array.

Menus : Creating Menus, Adding Menu Items, Adding Code for the Menus, Modifying menus at run time, Creating Pop-Up Menus.

Unit – III:

Database Programming in Visual Basic: Use of data control, creating database using Visual data manager, validating data, data bound controls.

Comparative study of Data Access Techniques: DAO, RDO, ADO, ODBC

Data access object:DAO Architecture, Database connectivity through data access object. Types of recordset , setting properties and record editing & updating , searching records.

UNIT IV :

Active X data object: ADO architecture, setting data source through Active X Data objects. Use of ADO control , connecting ADODC to bound controls. Use of different data bound Controls. Editing , Updating & searching through ADO.

Data Reports, Data Environment designer adding connection & commands Data report controls creating & printing reports.

Error handling: Types of errors, Debugging, tools for debugging, break mode,break points, watch window, immediate window, handling runtime errors.

45 Computerized Accounting

Unit –I:

Database environment, Data processing, Traditional and DBMS environment, Database system, Types of databases - Centralize, distributed, Database management system, Components of DBMS, DBMS elements, Database Approach - Objectives, benefits, characteristics, Advantages of DBMS, The three tire architecture, Three level architecture, Database administration – Roles, Functions and responsibilities of DBA.

Unit-II:

The E-R Model – Data models, Entities, attributes and relationship, Logical and Physical database design, Mapping Cardinalities, Database development process, Database development life cycle. Integrity constrains. Transforming ERR diagrams into relations, tree structure and hierarchical. Normalization, Codd's 12 rules, hierarchical database structure, Network database structure, Relational database structure.RDBMS.

Unit-III:

Introduction to ORACLE as RDBMS, History& standardization of SQL, Elements of SQL : Database objects, reserved words, Keywords, Variables, Data Types, Operators.

Types of SQL : DDL, DML, DCL, Create table, Alter table, Crate view, Drop table, grant, revoke, commit, delete, insert, lock table, rollback, save point, Update, Select statement, Where clause. Functions : Arithmetic & Characters comparison, Logical set, Like function, Group function, Date Functions.

Unit-IV:

PL/SQL : Introduction to PL/SQL, Variables, Initialization of variables, Dynamic data types, Control loop statements, PL/SQL Cursor : Declare cursor, Fetch, Open cursor, Close cursor. Triggers

:Concepts, Trigger definition, Trigger type, Enabling, Disabling & Dropping triggers.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

46 Project

The Project work constitutes a major component in most of the professional programmes and it is to be carried out with due care and executed with seriousness by the students.

Types of Project

As majorities of the students are expected to work out a project in some industry/research and development laboratories/educational institutions/software companies, it is suggested that the project is to be chosen which should have some direct relevance in day-today activities of the candidates in his/her institution. Students are encouraged to work in the area listed at the end. The List of Applications Areas in which project must be - Financial/Marketing/Database Management System/ Relational Database Management System/E-Commerce/Internet/Manufacturing/web Designing etc.

Group Project may be allowed (Not more than THREE students in a group)

Indicative Project Report Formulation.

Title Page.

Certificate Page.

Declaration Page.

Acknowledgment Page.

Index or Content Page.

Documentation.

Introduction/Objectives.

Preliminary System Analysis.

Identification of Need.

Preliminary Investigation.

Feasibility Study.

Need Of New System.

Flaws in Present System.

Project Category.

Software Requirement Specification.

Detailed System Analysis.

Data Flow Diagram.

Numbers of Modules and Process Logic.

Data Structures and Tables.

System Chart or Structure Chart.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Entity-Relationship Diagram.

System Design.

Source Code.

Input screen & Output Screen.

vii Validation Checks.

viii Implementation, Evaluation and Maintenance.

ix Security

x Measures taken.

xi Reports.

Future Scope of the project.

xii Bibliography.

---

47 Practical – I : Tally

The Practical should be based on all the units of Computerised Accounting (Tally)

48 Practical –II : VB & Oracle

The Practical should be based on all the Units of Front End Development (VB) and Unit-III and Unit- IV of DBCS & Oracle.

BBA Part-I

49. Principles of Management

UnitI:

Introduction- Nature, function, definition and importance of management, Definition, nature, purpose and scope of management, Functions of a manager, an overview of planning, organizing and controlling, is management a science or art?

Unit II:

Development of Management Thought - Scientific management; Contribution of Taylor,F ayol, Mary Follet, Elton Mayo; Hawthorne experiments, Contingency approach, Indian heritage in production and consumption.

Unit III:

Management and Administration - Management and administration, Management as aprofession, Professionalism of management in India, Management ethics and management culture,Skills required of manager, Classification of skills, Methods of skills development.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Unit IV:

Management Planning - Concept of planning, objectives, Nature, Types of plan, Stages involved in planning, Characteristics of a good plan, Importance, Limitations of planning, Making planning effective, Strategic planning in Indian Industry.

Unit V:

Decision Making - Concept, characteristics of decisions, Types of decisions, Steps Involved in decision making, Importance of decision making, Methods of decision making, Committeee Decision Making.

UnitVI:

\Organisation-
Concepts,Principleoforganization,Importance,Featuresofgoodorganizationstructure,TypesofOrganisationstructure.

50. English and Business Communication

Unit I:

Comprehension, Enriching Vocabulary, Single Word For a Group of Words, Words FrequentlyMisspell.

Unit II:

Business Letter Writing, Getting to the point, Choice of Words, Punctuation, E-mail etiquette. Enquiries and replies - Placing and fulfilling orders- Complaints and follow-up - Sales letters – Circular letters-Application for employment and resume.

Unit III:

Nature,Scope,andFunctionsofCommunication:Definition,Objectives,PurposeofCommunication, Communication Process, Sender's Thoughts, Encoding, Decoding, Feedback Loop, Noise Channels of Communication, Informal Channels Of Communication, Barriers to Effective communication.

UnitIV,V,VI:Textbookentitled'Prism:SpokenandWrittenCommunication,Prose&Poetry'publishedbyOrientLongman

TheBet–AntonChekov

Socrates and theS choolmaster–F.L.Brayne

An Astrologer's Day– R.K.Narayan

The Gift of the Magi–O'Henry

With the Photographer–Stephen Leacock

51. Business Economics

Unit I:

Nature and fundamental concepts and basis techniques of Business economics - Analysis of Demand, Significance, estimation of demand; Elasticity of Demand, Techniques and Importance of Demand forecasting; Basic Mathematical Problems related to demand estimation and elasticity of demand.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Unit II:

Production & Cost Analysis - Production&ProductionFunction:Concept, Forms of production function, Law of variable Proportions, Returns to scale. Cost concept, Short term and long term cost output relationship, Cost curves, Economies of scale.

Unit III:

Objectives & Equilibrium of the Firm - Market Structures- Perfect Competition, Monopoly, Monopolistic Competition &Oligopoly - kinked demand curve and cartels, Mathematical Problems on profit maximization and Price &Output determination under various market structures.

Unit IV:

National Income Accounting - Concept& measurement; Determination of Income & Employment; Concept of multiplier; Inflation and Deflation,t ypes,c causes and control of inflation.

Unit V:

Macro economic policy – Monetary and fiscal-objectives and Instruments; Effectiveness of Monetary & Fiscal Policy with respect to Indian Economy.

UnitVI:

Business cycles - Concept, Causes & Impact, Measures to control Business cycles.

52. Foundation Course in Organization behavior

Unit I:

Organizational Behaviour- The nature of organisations: Why do organizations exist? Components of organisations; Organisations as open systems, Managers in organisations, Productivity and managerial performance,Value-added managers,The manager's challenge, Organisational behavior and the new work place.

Unit II:

Foundations of Individual Behaviour- biographical characteristics, ability, and learning, Perception: Introduction, Halo effect, Stereotyping, pigeon holing and compartmentalisation; Self-fulfilling prophecy; Perceptual mythology; other influences on perception.

Unit III:

Attitudes and values - Attitudes, Components of attitudes, Attitudes andbehaviour, Attitudes and cognitive consistency, Job satisfaction as an attitude; development Values,Sources andtypesofvalues,Patterns andtrends in values,Managing values andattitudes.

Unit IV:

Motivation- Concepts, Theories of Maslow, Herzberg, McClelland, Porter &Lawler Model ,Application of Motivation concept, Individual motivation and motivation in the organization, Cultural Differences in Motivation, Intrinsic and Extrinsic Motivation, Role of motivation in human behaviour.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Unit V:

Foundations of group behaviour- The nature of groups: groups and teams, informal and formal groups, purpose of teams, Teams and team building: selecting team members, team roles, stages in team development, team building, team identity, team loyalty, commitment to shared beliefs, multi-disciplinary teams.

Unit VI:

Organizational Development - Goals of organisational development: Principles underlying organisational development, Ethical aspects of organizational development, The process of organizational development.

53. Financial & Cost Accounting

Unit–I:

Introduction-Meaning, Scope and importance of Financial Accounting. Financial Accounting - concepts and conventions, classification of accounts, Rules and principles governing Double Entry Book-keeping system. Accounting Books & Record - Meaning, Preparation of Journal, Ledger & Trial balance. Accounting Standards - introduction, Need & Objectives, AS 1 to AS 10, Accounting Policies and their Discloser.

Unit II:

Final Account of Joint Stock Companies - Final Accounts of Joint Stock Companies –contents, and preparation of Trading and Profit and Loss Account, Profit and Loss Appropriation Account and Balance sheet with adjustment, Closing Entries (Simple entries).

Unit III:

Accounting for Non-profit making institutions: Introduction for non-profit making institutions, receipt and payment account, income and expenditure account, preparation of final accounts of non-profit making institutions.

Unit IV:

Issue of Shares: Entries for issue of shares, Issue of shares at discount and premium, forfeiture and re-issue of forfeited shares.

Unit V:

Meaning, Definition, Scope, and Importance of Cost Accounting – Elements of Cost, Cost Classification, Preparation of Cost Sheets, Tenders, and Quotations. Methods of Cost Allocation and Absorption (Simple Problems on Operating Costing-Transportation only).

Unit VI:

Reconciliation of Profits Shown by Cost and Financial books. Marginal Costing – Break Even Analysis, Concept and Applications. Process Costing (Upto Abnormal Loss and Abnormal Effectiveness).

54 Computer Application for Business

Unit I:

Introduction to Computers- Generation of Computers ,Block Diagram, Working of Computer, Hardware and Software, Programming and Flow Charts concepts, Operating systems (MSDOS, Windows, UNIX, Linux), Networking concepts.

Unit II:

Working with Computers - Introduction to Word, Excel, PowerPoint, Internet and Web(WorkingwithGoogle,Yahoo,Rediff,Amazon,e-bayetc.),e-Commerce,e-Learningande-Business.

Unit III:

Multimedia - Introduction, Components of Multimedia: Graphics, Audio & Animation, Using Multimedia at Home, Business, Education and Entertainment, Applications in Games and Animation Industry.

Unit IV:

Introduction to HTML - Basics, Text, Lists, Images, Links, Backgrounds, Tables, Frames, Forms, Meta-tags and Hexa-colors, Preparing simple web pages.

Unit V:

IT Consulting – Basic concepts of business, strategy and operation; Business / Strategic Consulting: Reengineering, BPR; Operations Consulting: domain knowledge concept, domain-consulting.

Unit VI:

ITEnabledServices(ITES)–Processes,OutsourcingFunction,CallCenters;BPO's:CaptiveBPO's (GE and Dell) and Third Party BPO's(Infosys BPO, Wipro BOP, Mphasis, Daksh and EX Letc).

Lab Activity would be based on the following topics:

MS Word

MS Excel

MS Power Point

55.Business Organization & Systems

Unit I:

Introduction:Meaning,scope&EvolutionofCommerce&Industry,ConceptOfBusinessAsa System; Alternative Business Objectives. Small Business Organization: Scope and Role Government Policies.

Unit II:

Forms of Business Organization: Business Sectors & Forms of Business Organizations- Private sectors, cooperative sectors, Public sectors, Joint sectors, service sectors, various forms of Business Organizations- Sole Proprietorship, Partnership Firms, Joint Stock Companies-Their Feature, Relative Merits, Demerits and Suitability.

Unit III:

Multinationals- Concept and Role of MNCs, Transactional corporations(TNCs);International Business Risks, Emergence of Indian MNCs & Transactional corporation- Globalization & Challenges for Indian Business in New Millennium.

IV:

Organization of Wholesale & Retail Trade-Recent Trends in Wholesale & Retailing, Malls and Supermarkets-Their Effect of Economy-Organization of Finance, Transport, Insurance Communication & Other Utilities(services) to Trade.

Unit V:

Business Combinations: Concept and causes of business combinations, Government and Business Interface: Rationale, Forms of Government and Business Interface, Chambers of Commerce and Industry in India; FICCI, CII.

UnitVI:

Business and Society: hanging Concepts and Objectives of Business, Business and Culture, Technological Development and Social Change, Social Responsibility of Business, Social Audit.

BBA Part-II

56. Principles of Marketing Management

Unit-I:

Concepts & Application –Core Concepts of Marketing, Company Orientation towards Market place, New Concepts – E Business, Relationship Marketing; Database Marketing, Functional areas of Marketing.

Unit-II:

Marketing Plan - Steps in the Marketing Process, Nature and contents of a marketing plan, marketing mix.

Unit-III:

Product Management - Meaning of product, product classification, product levels, product policies, Product life cycle and new product development, Branding & packaging.

Unit-IV:

Pricing Strategies- Pricing objectives, methods and pricing policies; adopting the price; Initiating and responding to price changes.

Unit-V:

Distribution Strategies - Channel design and management, Channel dynamics and market logistics, Channels of distribution, Types of channels, Importance of Retailing and wholesaling.

Unit-VI:

Promotion Strategies- Promotion decisions and promotion mix, advertising, sales promotion, public relations personal selling, Channel management- selection, Emergence of new channels.

Case studies on the topics on unit III, IV, V and VI shall constitute an important part of internal assessment.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

57. Human Resource Management

Unit I:

The Strategic Role of HRM - Nature, scope, objectives, importance and functions, Human resource as an asset in organization, Evolution of the concept of HRM, Human resource management in India

Unit II:

Job Analysis & Design - Job Analysis – Meaning, Uses, Process and methods of collecting data for job analysis, Competency approach to job analysis, Job Description, Job Specifications & Role Analysis, Factors affecting Job Design, Techniques of Job Design Cases and Exercises in understanding Job Analysis.

Unit III:

Human Resources Planning & Recruitment Policy-Human Resources Planning; Need for Human Resources Planning; Process of Human Resources Planning; Human Resource Planning System; Responsibility for Human Resource Planning.

Unit IV:

Selection, Induction & Placement - Selection Process, New tools /Methods ofselection–Interviews,TestsandassessmentofeffectivenessofselectiontoolsInductionProgramme,ProblemsinInduction,RequisitesofeffectiveInduction,TypicalInductionProgramme–Do's&Don'ts,.

Unit V:

Employee Growth & Development Training - Introduction of Training; Objectives and Importance of Training; Training Needs Identification, Organization An alysis; Task Analysis; Man Analysis; Training Areas Identified by Trainers; Responsibility for Training; Types and Techniques of Training and Development.

Unit VI:

Performance Appraisal - Nature, Objectives, limitations–various methods – Modern &Traditional, Multiple Person Evaluation Methods; Performance Tests & Field Review Techniques;Appraisal,PraiseandRecognition;RewardsandIncentives;Promotions.HRRecords,MISHRReports,HRFormats–PersonnelFiles,Attendance,Leave,MedicalRecords.

58. Management Accounting & Financial Management

Unit I:

Introduction-Management Accounting- Meaning, Scope, Importance, and Limitations of Management Accounting, Difference between Cost Accounting and Management Accounting, Role of Management Accountant.

Unit II:

Sources of financing - LONG TERM: shares, debentures, term loans, lease & hire purchase, retained earnings, public deposits, bonds (Types, features & utility). (a) SHORT TERM: bank finance, commercial paper & trade credit & bills discounting. (b) INTERNAL: Retained earnings, Depreciation policies.

Unit III:

Dividend policies - Concept, determinants and factors affecting, relevance and irrelevance concept, dividend valuation models– Gordon, Walter and — Modigliani-Miller models.

Unit IV:

Working capital - Concept, significance, types. Adequacy of working capital, Factor affecting working capital needs, Financing approaches for working capital, Methods of forecasting working capital requirements.

UnitV:

RatioAnalysis–
Introduction,MeaningofRatio,ImportanceofRatioAnalysis,LimitationsofRatioanalysis,Classificationof Ratios:RatiosrelatedtoTradingandProfitandLossAccount,CurrentRatio, Liquid Ratio, debtors Turnover Ratio, Creditors Turnover Ratio, Working Capital Turn over Ratio.

Unit VI:

Financial Analysis – Statement of Changes in Working Capital, Preparation of Funds Flow Statement.

59. Business and Industrial Laws

Unit I:

Administration of law & legal system in India - Introduction to legal aspects of Business in general; Freedom of Trade, Profession and Occupation (Constitutional Provisions).

Unit II:

The Companies Act (1956)- Definition & characteristics of a company, Company distinguished from partnership, Kinds of Companies, Provisions relating to incorporation, lifting the Corporate Veil.

Unit III:

Memorandum of Association, Doctrine of ultra-vires, Articles of Association, Doctrine of indoor management & constructive notice, Concept of Prospectus.

Unit IV:

Indian Contract Act (1872) - a) Definition (Sec.2) b) Essential elements of a valid contract c)Competency to enter in contracts (Sec. 11 & 12).d) Consent – Free consent, Coercion, undue influence,fraud,misrepresentation,mistake(sec13-23).VoidAgreement(sec24-30)f)Consequencesofbreachofcontract(sec73-75).

Unit V:

Labour Legislations & ILO - Nature, Scope, character growth & development of labour legislation In India, Legislation & the constitution of India; Constitution, working & impact of ILO on Labour Legislations in India, ILO convention & recommendations

Unit VI:

Normative Labour Legislations - FactoriesAct,1948, Bombay shop & Establishment Act1948,WageLegislation-MinimumwagesAct,IndustrialRelationsLegislations-TradeUnionAct1926, Industrial Dispute Act 1947.

60. Statistical Methods for Business

Unit I:

Descriptive statistics–Definition,functions, scope and role of statistics in business, Importance of statistics, distrust and limitations of statistics.

Unit II:

Presentation of statistical data – classification; tabulation; frequency distribution; diagrams &graphs.

Unit III:

Statistical average - importance and requisites of a good statistical average; types of averages – arithmetic mean, median, mode, geometric mean and harmonic mean, weighted average, relationship amongst different averages.

Unit IV:

Dispersion - meaning and significance of dispersion; methods of measuring dispersion –range, quartile; mean deviation, standard deviation, Co-efficient of Skewness, Lorenz Curve.

Unit V:

Correlation and Regression (Simple)- Types of correlation, Calculation of Co-efficient of Correlation for Simple Series, Calculation of Co-efficient of Correlation for Continuous Series; Regression Equation of X on Y, Regression Equation of Y on X

Unit VI: Quantitative Techniques – An introduction: Classifications of quantitative techniques; applications of quantitative techniques to business and industry; limitations of quantitative techniques.

61. Research Methodology

Unit I:

ntroduction - Meaning, Objectives and Types of research, Research Approach, Research Process, Relevance & scope of research in management.

Unit II:

Research Design - Features of good Design, Types of Research Design, Sampling Design - StepsinsampleDesign,CharacteristicsofagoodsampleDesign,Probability&NonProbabilitysampling.

Unit III:

Measurement & scaling techniques - Errors in measurement. Test of sound measurement, Scaling and scale construction technique.

Unit IV:

Methods of data collection - Primary data – questionnaire and interviews; Collection of secondary data;

Unit V:

Processing of data - Data coding; Editing and Tabulation. Use of computer and Information technology in data collection,

UnitVI:

Interpretation of data - Techniques of Interpretation, Report writing, Layout of a project report, preparing research reports.

62. Environmental Management

Unit I:

Introduction to Environment Management - Definition, Scope & importance, Need for public awareness- institution in environment, People in environment, Fundamentals–sustainable development, Unsustainable to sustainable development.

Unit II:

Natural resources – Renewable and non renewable resources, and associated problems, Role of an individual in conservation of natural resources; equitable use of resources for sustainable life cycles ;Preserving resources for future generation ,the rights of animals.

Unit III:

Air Pollution:-Definition Air pollution, causes, effects & control, Greenhouse effect, pollution: Vehicles, Industry households, Global warming, Ozone layer depletion, effects & remedies, Role of individual and institution in preventions of Air pollution.

Unit IV:

Water and marine Pollution- Definition water pollution causes, effects & control; Management of water: Hard & Soft water, contaminants, Acid Rains; Pollution by sewerage, industry run off degradation due to biological changes; Sea water pollution & degradation of Marine; Role of individual and institution in preventions of water & marine pollution.

Unit V:

Human population & environment - Global population growth, variations among nations. Population explosion, Family welfare Programmes- methods of sterilization; Urbanization, Environment &human health-climate and human health, infectious diseases, water related diseases, risk due to chemicals in food, Cancer and environment.

Unit VI:

Social issues and environment-Construction of dams: problems and concerns of resettlement, rehabilitation of affected people; Conservation: energy, water, forest, soil, strategies for conservation; Environmental ethics–issues and possible solutions.

BBA Part-III

63. Entrepreneur Development

Bachelor of Business Administration (BBA) Part - III

PAPER - I

Entrepreneurship Development **(80 Marks)**

I. Entrepreneur : Evolution of the Concept of Entrepreneur, Characteristics of an Entrepreneur, Distinction between an Entrepreneur and a Manager. Function of an Entrepreneur, Types of Entrepreneur. Intrapreneur, Qualities of Entrepreneur.

II. Entrepreneurship : Concept of Entrepreneurship, Growth of Entrepreneurship in India, Role o Entrepreneurship in Economic Development, Theories of Entrepreneurship.

III. Factors Affecting Entrepreneurial Growth : Economic Factors, Non-Economic Factors Government Actions. Entrepreneurial Competencies - Meaning, Major Entrepreneurial Competencies Developing Competencies. Entrepreneurial mobility - Factor Affecting.

IV. Entrepreneurship Development Programmes : Need, Objective Course Contents an Curriculum of EDPs, Phases of EDPs, Evaluation of EDPs.

V. Small Enterprises - An Introductory Framework : Definition, Characteristics, Relationshi between Small and Large Units, Rationale, Objective, Scope, Opportunities for Entrepreneurial Caree Role of Small Enterprises in Economic Development, Problems of SSIs.

VI. Project Identification and Selection (PIS) : Meaning of Project. Project identification, Proje Selection.

VII. Project Formulation : Meaning, Significance and Contents of Project Reports, Formulation Project Reports, Planning Commission's, Guidelines for Formulating a Project Report, Common Errors Project Formulation

20/03/2021

Off. Principal,
S.S. Maniar College, Nagpur

64 Service Sector Management

PAPER - II

Service Sector Management (80 Marks)

I. The Foundation of Services Marketing : Introduction, Services: The Concept, Goods and Services: A Comparative Analysis, Salient features of Marketing Services, Services Marketing: the Concept, Why Marketing of Services?, Significance of Services Marketing, The Behavioral Profile of Users, Marketing Information System. Emerging Key Services, Building Services Aspirations.

II. Bank Marketing : Introduction, Bank Marketing the Concept, justifications for Marketing the banking Services, The users of Banking Services, The Behavioural profile of Users, Marketing Information Organisation, Market Segmentation, Marketing Mix for the Banking Services, The Product Mix, The Promotion Mix, The Price Mix, The Place Mix, The People, The Physical Attractions, Bank Marketing in the Indian Perspective.

III. Insurance Marketing : Introduction, Concept, Users of Insurance Services, Behavioural Profile of users, Insurance Product, Planning and Development, Formulation of Marketing Mix for Insurance Marketing. IRDA and Career as a Insurance Agent.

IV. Mutual Fund Marketing : Introduction, Concept, Users of Mutual Funds Services, Behavioural Profile of users, Mutual Fund Product, Planning and Development, Formulation of Marketing Mix for Mutual Funds marketing AMFI and Career as a Mutual Funds Advisor.

V. Tourism Marketing : Introduction, Concept, Users of Tourism Services, Behavioural profile of users, Product Planning and Development, Market Segmentation, Marketing Mix for Tourism.

VI. Education Marketing : Innovative Education - Concept, Why and How?, Emerging trends, Marketing Mix for Adult Education, Elementary Education, Secondary Education, Intermediate Education,

65. Logistics Management

PAPER-III

Logistics Management (80 Mark

I. Overview of Logistics Function : Logistics Strategy and Planning, Role of Logistic ustomer service; Logistics information systems.

II. Warehousing : Functions, options, site selection, layout design, decision model, costi rategies, virtual warehouse, performance parameters, warehousing in India, cold chain infrastructure.

III. Material Storage and Handling : Unit load storage, storage principles, benefits of st esign, storage methods; role of material handling in logistics, material handling guidelines, equipment a ystems.

IV. Inventory Management : Need, concept and costs, functions of inventory, inventory Pol uidelines., Purchasing and Product Scheduling Decisions;

V. Transportation : Evolution of transportation system, transport infrastructure, freig anagement; Logistical packaging - Concept & design consideration.

VI. SCM : Concept, supply chain components, role of Logistics in supply chain, mappi upply chain, E business solutions in supply chain.

VII. Performance Measurement and Controls : Need , objective, logistics performance leve gistics audit, logistics performance control.

VIII. Logistics Strategy : Creating competitive network, logistics strategies, Governm olicies and regulations: warehousing, transportation, packaging, inventory valuation.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

66. Retail Sales Management

PAPER-IV

Retail Sales Management **80 Marks**

1. Introduction to Retail : What is Retail?, Retail - The Industry, Function of a Retailer, The Changing Retail Landscape - Reasons for the Changing Retail Landscape, The Marketing-Retail Equation, Manufacturer's Perspective, Retail Industry Perspective, Retail in India, The Growth of Retail in India, Classification of the Retail Sector, Roadblocks to Retail Development, Future Prospects.

2. Retails Formats and Theories : Evolution of Retail Formats, Social Developments and their impacts, Industrial Revolution, Emergence of Self Services, Super Markets, Speciality Stores, Malls and Other Formats, Rise of the Webs, Theories of Retail Development, The retail life cycle, Phases of Growth of retail Markets, Classification of Retails Store, Franchising - Type of Franchising, Franchising in India.

3. Understanding the Retail Consumer : Factors influencing the retail shoppers, The Customer decision making process, Change in India, Market Research-A tool for understanding retail market and consumer.

4. Store Location : Importance of stores location, Types of location, Steps involved in choosing a retail location, Trends in retail property development in India (Mumbai, New Delhi and Nagpur).

5. Retail Merchandising : Concept, Evolution, Factors affecting merchandising, Function of Merchandising Manager, Function of Buyer, Stages in Merchandising planning.

6. Merchandising Buying : Steps in Merchandising buying, Branding Strategies Manufactures Brands, Licensed Brands, Private lable Brands, Category Management.

7. Retail Pricing and Merchandise Performance : The Concept of Retail Price, Elements of Retail Price, Developing a Pricing Strategy, Various Approaches to a Pricing strategy, Adjustments to Retail Price, A Comparison of Marksups and Markdowns, Merchandise Allocation, Analysing Merchandise Performance. Gross Margin Return on Investment.

8. Retail Operations : Elements/Components of Retail Operations - Store Administration a Management of the Premises, Managing Inventory and Display, Managing Receipts, Customer Servi Management Promotions, Events, Alliances and partnerships.

9. Retail Marketing and Communication : The Retail Marketing Mix, The STP Approach, T

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

67. Financial Management

PAPER-V

Elective Subject

Student has to select any one of the following elective subjects

A) Financial Management

1. Overview of Indian Financial Markets : Finance Function, Sources of Short-term a Long-term finances.

2. Working Capital Management : Concept, meaning, scope and significance; computation of worki capital requirements and duration of operating cycle; working capital financing policies; Risk and Retu Trade-off.

3. Cost of Capital and Capital Structure Decisions : Types of cost capital, computation of weigh average cost of capital, determining optimal capital structure, computation of leverages.

4. Capital Budgeting Decisions : Premises of Capital Budgeting Decisions, Tools in Capital Budgeti Pay Back Period, Average Rate of Return on Investment, Net Present Value, IRR.

5. Dividend Decision and Management of Earnings : Relevance and irrelevance approac dividend valuation models, stability of dividend.

6. Stock Exchanges in India : BSE, NSE, OTCEI, ICSEI, Functions of stock exchange, Sto indices, Computation of index, Secondary Market Trading Mechanism.

7. Investment Opportunities and Their Distinctive Features- Corporate Securities, Deposit, P Office Deposits and Certificates, Life Insurance Policies, Provident Fund Scheme, Equity Linked Savi Schemes (ELSSs), Plan, Government and Semi-Government Securities, Mutual Fund Schemes, R estate.

8. Depositories and Custodians : Concept of de-materialization, Depositories system, NSDL, CDSL, Custodians - Stock Holding Corporation of India Ltd.

9. Fundamental Analysis : Concept, steps and basic tools used.

10. Technical Analysis : Concept, steps and basic tools used.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

68. Project

Guidelines for Project Work

Objective

Every student will be assigned a project in BBA-III and it will be pursued by him/her under the supervision of an internal supervisor The objective of the Project Course is to help the student develop his / her ability to apply multi-disciplinary concepts, tools and techniques to solve organizational problems and /or to evolve new/ innovative theoretical framework.

Type of Project

The Project may take any one of the following forms:

Comprehensive case study (covering single organization/ multifunctional area problem, formulation, analysis and recommendations)

Inter-organisational study aimed at inter-organisational comparison/ validation of theory / survey of management services.

Evolution of any new conceptual / theoretical framework.

Field study (Empiricalstudy).

Software analysis, Design and solutions for organisational achievement (Applicable to IT)

Selection of Project Topic:

Project topic has to be selected with respect to the programme of study and area elected by the student.

Title of the project should clearly specify the objective and scope of the study. It should be specific and neither too vague nor centralistic. The topics should be designed meticulously. It can be designed like "Employee Welfare Measures"–A case study of XYZ Ltd.

Project selection has to be made in consultation with the supervisor who will act as a Project guide for the student.

Scope of Work

The student is expected to carry out following activities in the project:

Prepare a synopsis and get it approved by the supervisor as assigned by the respective Institutes.

Undertake a detailed literature survey on the subject matter.

Make relevant data collection/ observation.

Consult experts of the field.

Visit related organizations / institutions / industries.

Compiled in proper format.

Make proper conclusion / recommendations.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Prepare a Project Report.

The volume of the project-report should be ranging from 60-80pages.

Obtain approval of Project Report by project supervisor

Submit two hard bound copies of the Project Report at the Institute.

Submission of the Project Report shall be one month prior to the date of the commencement of the Examinations for BBA -III

General Format of the Report

The project report should preferably be written in the following format:

Executive Summary

Introduction to topic

Research Methodology

Analysis and Findings of the study

Conclusions and Recommendations of the study

Bibliography

Appendices–to include questionnaire , if any

Examination and Evaluation

Project is to be treated as a paper of study of the BBA-III comprising of 100 marks. The external assessment shall be done on the basis of the project report and Viva Voce.

The Project shall be evaluated by an External faculty for 100 marks and of which 50 marks will beallocatedtotheWrittenReportContentandPresentationand50marksforVivaVoce.The Projectworkshallbeevaluatedbyinternalandexternalexaminersapprovedinthelistoftheuniversity

For 100mark s(as mentioned above) at the respective institute / college as per the scheduled fixed by the university.

Bachelor of Science (B.Sc. (IT)) Semester-I

69 English

Unit I - Prose Lessons

1. The House
2. The Boy Who Broke The Bank
3. Parveen
4. The Selfish Giant

Unit II - Poems

1. Eyes Immortal
2. Elegy Written in a Country Churchyard
3. Ulysses
4. Ecology

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Unit III - Grammar

1. Tenses
2. Voice
3. Prepositions

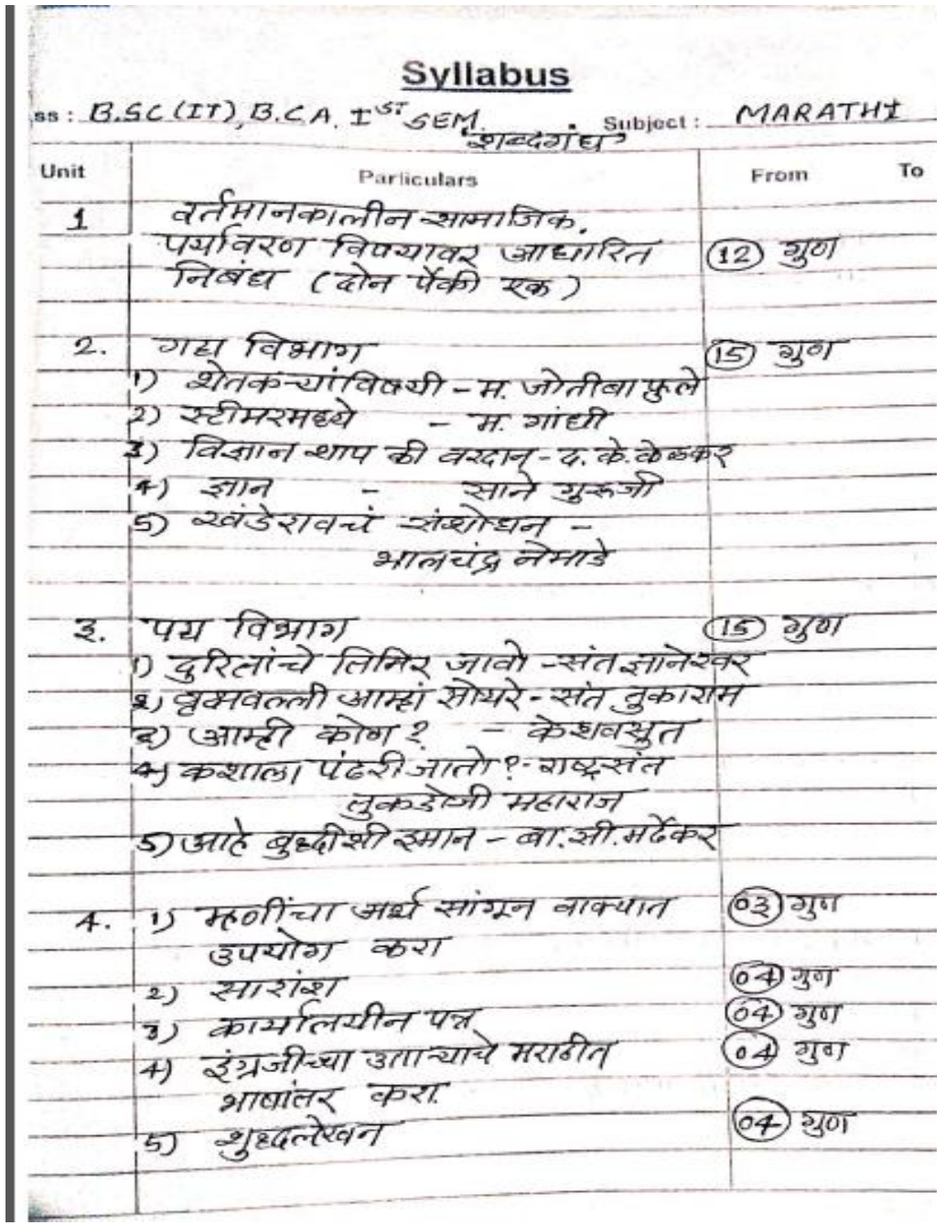
Unit IV – Composition, Comprehension & Vocabulary

1. Letter Writing

2. Comprehension

3. Synonyms and Antonyms

70 Marathi



Syllabus

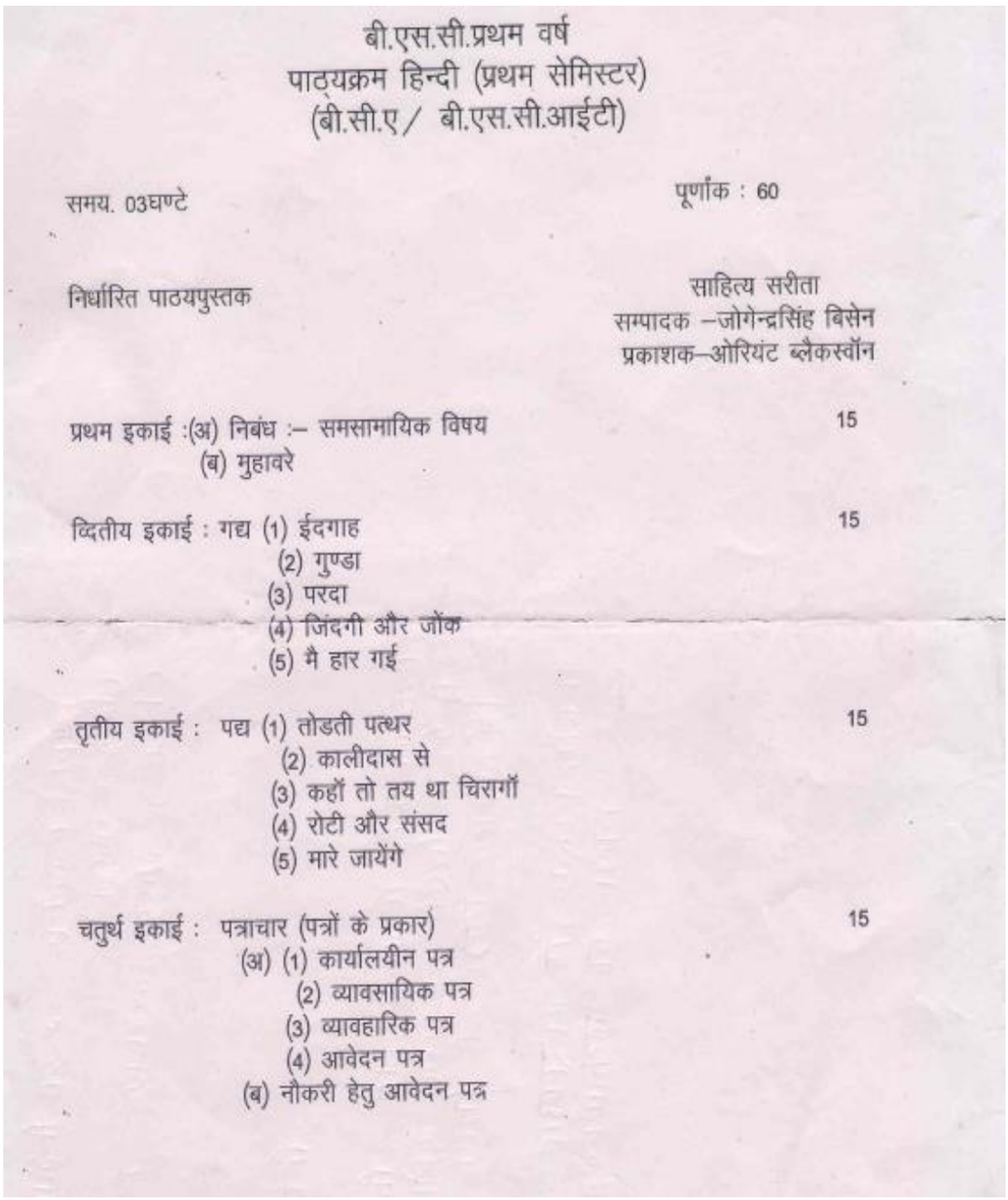
ss : B.SC (IT), B.C.A. IST SEM. Subject : MARATHI

शब्दगंध

Unit	Particulars	From To
1	वर्तमानकालीन सामाजिक, पर्यावरण विषयावर आधारित निबंध (दोन पैकी एक)	(12) गुण
2.	गद्य विभाग 1) शेतकऱ्यांचा विषयी - म. जोतीबा फुले 2) स्टीमरमध्ये - म. गांधी 3) विज्ञान शाप की वरदान - द. के. केळकर 4) ज्ञान - साने गुरुजी 5) खंडेरावचं संशोधन - बालचंद्र नेमाडे	(15) गुण
3.	पद्य विभाग 1) दुरितांचे तिमिर जावो - संत ज्ञानेश्वर 2) वृक्षवल्ली आम्हां सोयरे - संत तुकाराम 3) आम्ही कोण? - केशवसुत 4) कशाला पंढरी जातो? - राष्ट्रसंत तुकडोजी महाराज 5) आहे बुद्धीशी ज्ञान - बा. भ. बोरकर	(15) गुण
4.	1) म्हणींचा अर्थ सांगून वाक्यात उपयोग करा 2) सारांश 3) कार्यालयीन पत्र 4) इंग्रजीच्या उताऱ्याचे मराठीत भाषांतर करा 5) शुद्धलेखन	(03) गुण (04) गुण (04) गुण (04) गुण (04) गुण

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

71 Hindi



बी.एस.सी.प्रथम वर्ष
पाठ्यक्रम हिन्दी (प्रथम सेमिस्टर)
(बी.सी.ए / बी.एस.सी.आईटी)

समय. 03घण्टे — पूर्णांक : 60

निर्धारित पाठयपुस्तक — साहित्य सरीता
सम्पादक –जोगेन्द्रसिंह बिसेन
प्रकाशक–ओरियंट ब्लैकस्वॉन

प्रथम इकाई :(अ) निबंध :– समसामायिक विषय — 15
(ब) मुहावरे

विदतीय इकाई : गद्य (1) ईदगाह — 15
(2) गुण्डा
(3) परदा
(4) जिंदगी और जोंक
(5) मै हार गई

तृतीय इकाई : पद्य (1) तोडती पत्थर — 15
(2) कालीदास से
(3) कहॉ तो तय था चिरागॉ
(4) रोटी और संसद
(5) मारे जायेंगे

चतुर्थ इकाई : पत्राचार (पत्रों के प्रकार) — 15
(अ) (1) कार्यालयीन पत्र
(2) व्यावसायिक पत्र
(3) व्यावहारिक पत्र
(4) आवेदन पत्र
(ब) नौकरी हेतु आवेदन पत्र

72 Supplementary English

Unit I : Prescribed Text: **Understanding India** Edited by B. Keralavarma (Macmillan)
The following essays from the prescribed Text:
1. Brother Abdul Rahman – Amarlal Hingorani
2. Gandhi and the Western World - Louis Fischer
3. The Cow of the Barricades – Raja Rao
4. The Smaller Gandhis – Mohinder Singh Sarna

Unit II : The Old Man and the Sea by **Ernest Hemingway (Duttsons)**

Unit III: Vocabulary Expansion
(Some Common Foreign Words Used in English, One Word for a Group of Words, Idioms and Phrases)

Unit IV: a) Expansion of an Idea
b) **Word-formation Rules**
(Noun Forms of Some Adjectives, Noun Forms of Some Verbs)
c) Precis Writing

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

73 Fundamentals of Information Technology

UNIT - I : Basic Components of Digital Computers: Block Diagram. CPU: Functions of Each Unit: Primary Memory, ALU and CU, Instruction format. Bus: Data, Control and Address Bus Number Systems: Binary, Octal, Decimal, HexaDecimal, Their Conversions, Binary Arithmetic. ASCII, BCD, EBCDIC. Language Evolution : Generation of Languages : Machine, Assembly, High Level Languages. Characteristics of Good Language Translators : Compiler, Interpreter and Assembler. Source and Object Program.

UNIT - II : Memory: Static & dynamic, RAM, ROM, PROM, EPROM, EEPROM, flash and Cache. Storage Devices: Hard Disk, Zip Disk and Optical Disk. Pen Drive, Blue Ray

UNIT - III : Input Devices: Keyboard, Mouse, Light Pen, Touch Screen, Voice Input , MICR, OCR, OMR, Barcode Reader and Flatbed Scanner. Output Devices: VDU, Printers: Dot Matrix, Laser and Inkjet. Plotters: Drum, Flat-Bed and Inkjet.

UNIT - IV : Network: Network terminology, Topologies : Linear, Circular, Tree and Mesh. Types of Networks: LAN, WAN, MAN. Repeaters, Bridge, Routers, Brouters and Gateway. Modem for Communication between pc's, wi-fi network, Introduction of Bluetooth and Infrared devices. Network protocols. Architecture : Peer-to-Peer, Client/Server.

74 Programming Methodology in C

UNIT- I : Programming Structure : Sequence, Selection, Iteration and Modular. Problem Solving techniques: Development Tools: Algorithm, Flowcharts and Pseudo code (Definition and its characteristics) Developing Algorithm and Drawing flowcharts

UNIT- II : C Character set, Tokens, Identifier, Keywords, Variables, Data types, Qualifiers. Operators and Expressions: Arithmetic, Relational, Logical, Bit-Wise, Increment, Decrement, Conditional and Special operators. typedef, Type Conversion, Constants, Declaring Symbolic Constants, Character Strings, Enumerated Data Types, Operator Precedence and Associativity. Library functions. : Maths, string handling Functions. Control Structure: Compound Statement, Selection Statement: if, if-else, Nested if, switch. Iteration statement: for, while, do..while, Nested loops, Jump statement: break, continue, goto. (Special emphasis on problem solving)

UNIT- III : Arrays: Need, Types: Single and Two Dimensional Array. Strings: Strings Manipulation, Arrays of Strings, Evaluation order Function: Function Components, Return Data type, Parameter Passing, Return by Reference, Default Arguments, Recursive Functions, Arrays with Functions, Storage Classes. (Special emphasis on problem Solving)

UNIT- IV: Structure: Declaration, Definition, Accessing structure members, Initialization, Nesting of Structures. Union: Unions, Differences between Structure and Union Pointer: Introduction, Address Operator (&), Pointer variables, Void pointers, Pointer Arithmetic, Pointers to Pointers. File handling: Hierarchy of File Stream Classes, Opening & closing a file, Testing for errors, File Modes, File pointers and their manipulations, Sequential Access, Random Access, Command Line arguments.

75 System Analysis and Design

UNIT - I : Introduction : System, Subsystems, Components of Computerized Information System, Systems Analysts, SDLC, Prototyping. Feasibility Study and Analysis: Identifying Problems, Organizing Feasibility Analysis: Economic, Financial, Organizational and Technological. Feasibility Decision, Choice of a solution. Data Collection: Interviews, Brain Storming, Questionnaires, Document Search, Observation.

UNIT - II : Structured tools and techniques of Data analysis : Structured English, Process Charts, SOP, Decision Tables and Decision Trees, Data Flow Diagram, Data Dictionary. (Special emphasis on problem solving) System Design : Input design: Input Validation, Human factor Consideration, Messages, System Tolerance. Output design: Categories of output, Design Principles, Control of Output. Forms: Principles of Form Design, Ways to ensure Quality Forms. Codes: Types, Physical Representation of Codes, Principle of Code Design.

UNIT - III : Implementation: Training, Operational Training and Related Activities, Planning to Implement Change, Change Strategies. Testing: Preparation for Testing, Test Execution: Levels of Testing, Component, Function, Subsystem, System, Test Evaluation, Acceptance. Conversion: Cold Turkey, Parallel, Pilot, Modular and Sequential Methods. Conversion Period Length. System Evaluation.

UNIT - IV : Project Planning, Metrics for Project Size Estimation, Project Estimation Techniques, Scheduling: Work Breakdown Structure, Activity Networks and CPM, Gantt Charts, PERT Charts, Project Monitoring and Control. Risk Management, Software Configuration Management: Necessity, Configuring Management Activities Software Reliability and Quality Management: Software Reliability, Software Quality, ISO 9000. Software Maintenance: Characteristics of Software Maintenance, Maintenance Process Models, Estimation of Maintenance Cost. Software Reuse: What can be reused, Why no reuse so far, Basic Issues.

76 Web Technologies

UNIT I Introduction to Internet, Requirement for connecting to internet, Basic internet term, Introduction to World Wide Web (WWW), Evaluation of world wide web, basic features of www, web browsers, web server. Internet Security: Secure Transaction, Privacy issues, computer crimes and its type. Security Issues: Security threats like damage to data, loss of data and unauthorized use of data. Security Procedure: Firewall, Encryption, Password, Access Control List, Digital Certificate.

UNIT – II

Introduction to HTML, Features of HTML , Advantage and Disadvantage of HTML, Basic structureof HTML documents. Creating web pages with HTML Tags : <HTML>, <HEAD>, <TITLE>,<BODY>,Heading tags, Paragraph tags, Alignment, Font tag and its attributes, line break, Preformatted text tag, list element (Unordered lists, ordered list, Definition list, Marquee tags and itsattribute. Character formatting tags: Logical verses physical style, logical and physical tags.Changing the colors of the fonts. Linking :Relative pathnames verses absolute pathnames, URLs,Linking within a web page, linking to a different web page, linking to external web page, linking toan image by image, linking to document located in different directory, types of URLs .

UNIT – III

Images: IMG element and its attributes, Images as a Hyperlink, Image map, Image Formats, Frames. Tables: TABLE element and its attributes, Creating simple tables, Row element, Data element, Spanning rows and columns. Form designs: Form Controls, Text controls, password fields, radio buttons, checkboxes, reset and submit buttons, select element, option , Image and textarea. Embedding Multimedia: Introduction, Embedding Multimedia, Inserting sound/audio formats, video file formats. DHTML: using DHTML in internet explorer, heading and horizontal line, hidden message, the message at the center of the page, moving boxes , changeable box.

UNIT – IV

Cascading Style Sheets (CSS): advantage of CSS, Disadvantage of CSS, Defining a Style, Inline style sheet, Embedded Style sheet, External style sheets. Style sheet Properties: Font, color, background, creating group, text, Box properties, span tag. Scripting Language: JAVA SCRIPT – Introduction, Advantages, Disadvantages, Working of JavaScript, Structure of JavaScript program, Variable, Data types, Operators & Expression, Decision Making- if—else, switch, loops(for, for…in, while, do…while), break & continue, , Arrays

77 Multimedia Application Development

Unit I Fundamental concepts in Text and Image: Multimedia and hypermedia, world wide web, overview of multimedia software tools. Graphics and image data representation graphics/image data types, file formats, Color in image and video: color science, color models in images, color models in video.

Unit II Fundamental concepts in video and digital audio: Types of video signals, analog video, digital video, digitization of sound, MIDI, quantization and transmission of audio.

Unit III Action Script I: ActionScript Features, Object-Oriented ActionScript, Datatypes and Type Checking, Classes, Authoring an ActionScript Class. Action Script II: Inheritance, Authoring an ActionScript 2.0 Subclass, Interfaces, Packages, Exceptions.

Unit IV Application Development: Application Frame work, Using Components with ActionScript MovieClip Subclasses. Multimedia data compression: Lossless compression algorithm: Run-Length Coding, Variable Length Coding, Dictionary Based Coding, Arithmetic Coding, Lossless Image Compression, Lossy compression algorithm: Quantization, Transform Coding, WaveletBased Coding, Embedded Zerotree of Wavelet Coefficients Set Partitioning in Hierarchical Trees (SPIHT).

78 Applied Mathematics-I

UNIT- I: Propositional Calculus: Connectives, Negation, conjunction, Disjunction, statement formulas and truth tables, conditional and Bi-conditional, well formed formulas, Tautologies, Equivalence of formulas, duality law, Tautologies implications, Functionally complete set of, other connectives,

UNIT- II: Disjunctive normal forms, connective normal forms, Principal disjunctive normal form, Principal conjunctive normal form.

UNIT- III: Predicate Calculus: The theory of Inference for statement Calculus, validity using truth tables, Rules of inference, consistency of premises and indirect method of Proof

UNIT- IV: The statement function, variables and quantifier, Predicate formulas, Free and Bound variables, The universe of Discourse, Theory of inference for predicate calculus.

79 Practical-I Practical-I Based on Paper I &II

80 Practical-II Practical-II Based on Paper III &IV

81 Practical-III Practical-III Based on Paper V &VI

Bachelor of Science (B.Sc. (IT)) Semester-II

82 English

Unit I - Prose Lessons

1. Maintaining Democracy
2. The Verger
3. Two Gentlemen of Verona
4. Freedom at Midnight

Unit II - Poems

1. Where the Mind is without Fear
2. My Last Duchess
3. Up Hill
4. The Village Schoolmaster

Unit III - Grammar

1. Subject-Verb Agreement
2. Transformation of Sentences
(Interchange of Degrees of Comparison, Affirmative and Negative Sentences, Interrogative and Assertive Sentences, Exclamatory and Assertive Sentences)
3. Exercises on Common Errors

Unit IV – Comprehension & Composition

1. Comprehension
2. Curriculum Vitae
3. Make sentences of your own from the words given.

83 Marathi

II^ND IV^TH Sem

Syllabus

Subject : Marathi

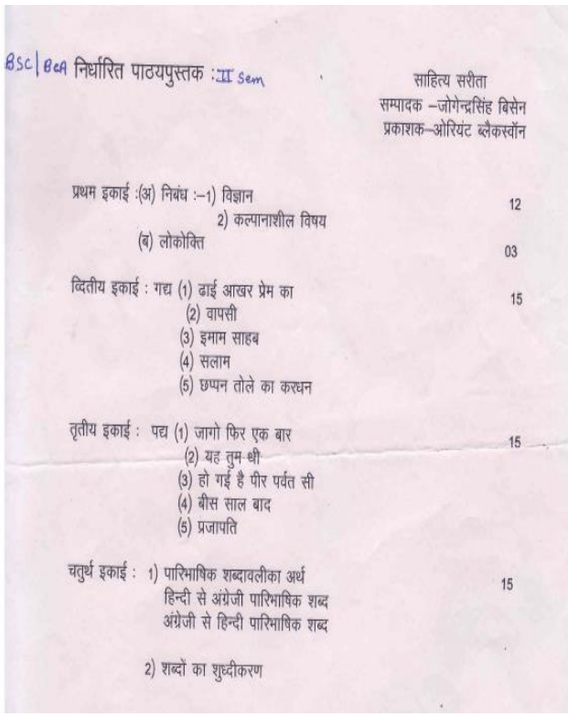
Class : B.Sc (II), BCA - II

Unit	Particulars	From	To
1	निबंध (200 शब्दात) ① विज्ञानावर आधारीत ② कल्पकतेवर -"-		(12)
2.	गद्य विभाग ⑥ सत्य कुणीही शोधू शकते - श्याम मनोहर ⑦ ज्ञानदेवे रचिला पाया - सदानंद मोरे ⑧ विवेकवादी आणि विज्ञाननिष्ठ : संत तुकाराम - किशोर सानप ⑨ स्त्री-पुरुष स्वातंत्र्याची गोष्ट - अरुणा सबाने ⑩ गाव तिथं शाळा - रमेश इंगळे-उन्नादकर		(15)
3.	पद्य विभाग ⑥ आणि पृथ्वीला हसू येते - सुधाकर गायधनी ⑦ शब्द - श. गो. चवरे ⑧ एकविसाव्या शतकाच्या उंबरठ्यावर ⑨ गाव सुन्या शेता-मातीचे - जयराम खेडेकर ⑩ जन्म-मरणाच्या वेणा - संजीवनी तडेगावकर		(15)
4.	① वाक्प्रचाराचा अर्थ सांगून वाक्यात उपयोग करा. ⑧ ② शुद्धलेखन ③ ③ सारांश ④ ④ पत्र ④ ⑤ माहितीचा अधिकार ④ = (18)		

20/03/2021

Off. Principal,
S.S. Maniar College, Nagpur

84. Hindi



BSc | BCA निर्धारित पाठयपुस्तक : III Sem

साहित्य सरीता
सम्पादक –जोगेन्द्रसिंह बिसेन
प्रकाशक–ओरियंट ब्लैकस्वॉन

प्रथम इकाई :(अ) निबंध :–1) विज्ञान — 12
2) कल्पानाशील विषय
(ब) लोकोक्ति — 03

द्वितीय इकाई : गद्य (1) ढाई आखर प्रेम का — 15
(2) वापसी
(3) इमाम साहब
(4) सलाम
(5) छप्पन तोले का करधन

तृतीय इकाई : पद्य (1) जागो फिर एक बार — 15
(2) यह तुम थी
(3) हो गई है पीर पर्वत सी
(4) बीस साल बाद
(5) प्रजापति

चतुर्थ इकाई : 1) पारिभाषिक शब्दावलीका अर्थ — 15
हिन्दी से अंग्रेजी पारिभाषिक शब्द
अंग्रेजी से हिन्दी पारिभाषिक शब्द

2) शब्दों का शुध्दीकरण

85. Supplementary English

Unit I : Text prescribed : Understanding India Edited by B.Keralavarma (Macmillan)
The following essays from the prescribed Text**:**
1. The Idea of India : India's Mosaic of Multiplicities – Shashi Tharoor

2. Roots – Ismat Chugtai

3. A Gandhian in Garhwal – Ramchandra Guha

4. The End of Living and the Beginning of Survival – Chief Seattle

Unit II : The Mayor of Casterbridge by Thomas Hardy (Macmillan, Stories to Remember)
Unit III : a)Writing Advertisements (For sale of vehicle(s)/property, For Rent, Situation Vacant, Situation Wanted)
b) Newspaper Reports (about accident, fire, functions/events)
c) Precis Writing

86 Fundamentals of Digital Electronics

Unit – I Data and Information: Features of Digital Systems, Number Systems: Decimal, Binary, Octal, Hexadecimal & their inter conversions, Representation of Data: Signed Magnitude, one's complement & two's complement, Binary Arithmetic, Fixed point representation and Floating point representation of numbers. Codes: BCD, XS-3, Gray code, hamming code, alphanumeric codes (ASCII, EBCDIC, UNICODE), Error detecting and error correcting codes.

Unit- II Boolean Algebra: Basic gates (AND, OR, NOT gates), Universal gates (NAND and NOR gates), other gates (XOR, XNOR gates). Boolean identities, De Morgan Laws. Karnaugh maps: SOP and POS forms, Quine McClusky method.

Unit –III Combinational Circuits: Half adder, full adder, code converters, combinational circuit design, Multiplexers and demultiplexers, encoders, decoders, Combinational design using mux and demux. Sequential Circuit Design: Flip flops (RS, Clocked RS, D, JK, JK Master Slave, T, Counters, Shift registers and their types, Counters: Synchronous and Asynchronous counters.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Unit- IV Computers: Basic Organization, Memory: ROM, RAM, PROM, EPROM, EEPROM, Secondary Memory: Hard Disk & optical Disk, Cache Memory, I/O devices

87 Object Oriented Programming Using 'C++'

UNIT - I : Object Oriented Methodology: Elements of Object Oriented programming, Objects, Classes, OOPs features. Classes & Objects: Specifying a Class, Creating Objects, Accessing Class members, Defining member function, Outside Member Functions as inline, Accessing Member Functions within the class, Static data member, Access Specifiers: Private, Protected and Public Members.

UNIT - II : CONSTRUCTORS & DESTRUCTORS: Introduction, Parameterized Constructors, Constructor Overloading, Constructors with Default Arguments, Copy Constructor, Destructor, Order of Construction and Destruction, Static data members with Constructor and Destructors. OPERATOR OVERLOADING: Definition, Overloadable Operators, Unary Operator Overloading, Unary & Binary overloading, Rules for Operators Overloading.

UNIT - III : DYNAMIC OBJECTS: Pointers to Objects, Creating and Deleting Dynamic Objects: New and Delete operators, Array of Objects, Array of Pointers to Objects, Pointers to Object Members, this Pointer. INHERITANCE: Defining, Abstract classes, Single, Multilevel, Multiple, Hierarchical, Hybrid Inheritance, Constructor and Destructor in Derived Classes.

UNIT - IV : VIRTUAL FUNCTIONS: Need for Virtual Functions, definition, Pure Virtual Functions, Abstract Classes, Rules for Virtual Functions. EXCEPTION HANDLING: Exception Handling Model, List of Exceptions, Handling Uncaught Exceptions, Fault Tolerant Design Techniques, Memory Allocation Failure Exception, Rules for Handling Exception Successfully.

88 Operating System

UNIT - I: Structure of Operating System, Operating System functions, Characteristics of Modern OS. Process Management: Process states, Creation, Termination, Operations on Process, Concurrent process, Processes Threads, Multithreading, Micro Kernels CPU Scheduling: Schedulers, Scheduling Methodology, CPU Scheduling Algorithm: FCFS, SJF, RR, Priority Scheduling.

UNIT – II: Performance comparison : Deterministic Modeling , Queuing analysis, Simulators. Deadlock and Starvation: Resource Allocation Graph, Conditions for Dead Lock, Dead Lock Prevention, Dead Lock Detection, Recovery from Deadlock.

UNIT - III: Memory Management: Logical Vs. Physical Address Space, Swapping, Memory Management Requirement, Dynamic Loading and Dynamic Linking, Memory Allocation Method: Single Partition allocation, Multiple Partitions, Compaction, paging, segmentation, Segmentation with paging. Protection.

UNIT - IV: I/O Management: I/O hardware, I/O Buffering, Disk I/O, Raid, Disk Cache. File Management: File Management system, File Accessing Methods, File Directories, File Allocation Methods, File Space Management, Disk Space Management, Record blocking. Protection Mechanisms: Cryptography, Digital Signature, User Authentication.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

89 Web Programming

Unit I Internet, Internet users and working, Information on Internet, Requirements for connecting to Internet, Basic Internet Terms, Introduction to world wide web, Evaluation of world wide web, basic features, web browsers, popular web browsers, web servers, HTTP, URL, Search Engines, Search Engines categories, how to use Search Engines, Searching criterion, Introduction to browsers, Working with e-mail, Parts of e-mail text, working with messages.

Unit II Java Script -Introduction , values and variables, operators, loops and various statements in java script, Date object, Math object, string object, window events, working with forms, document object, screen object, navigator object, images and animation, java script objects Declaration, definition, and referencing. Identifiers scope rules. Recursion. Arrays; declaration, allocation & accessing, sorting of arrays, JavaScript objects : Math, String, Date, Number and Boolean. Documents, forms, Statements, Functions, Objects in Java scripts, events and event handling, arrays, FORMS, Buttons, Checkboxes, Text fields and text areas.

Unit-III Introduction to active server pages (ASP) : working of ASP, setup, ASP objects, file system object, session tracking & cookies. Accessing databases using ASP. XML: Introduction, Document type definition, XML Schemas, Document Object model, Presenting XML, Using XML Processors: DOM and SAX

Unit IV XML displaying an XML Document, Data interchange with an XML Document, advantages of integrating ASP & XML. Introduction to Java Server Pages (JSP): scripting standard actions, Directives. Custom tag libraries. JSP & XML case study: advantages of integrating JSP & XML.

90 Database Management System

UNIT- I : DBMS : Definition: Databases, DBMS, Problems with traditional file processing system, Objectives of the database systems, Three level architectures of DBMS, Component of DBMS, Database Administrator, Database Users, Data model, Different types of data models, Concepts of Hierarchical, Network Models.

UNIT-II : E-R Models : Basic Concepts, Entity, Attributes, Relation Ship, Mapping, Keys, Weak and Strong Entity Set, Problems on E-R Diagrams, Extended E-R Features: Specialization, Generalization, Aggregation, Problems on Reduction of an E-R Schema to Tables, Tabular representation of Strong, Weak entity Sets and Relationship Sets.

UNIT-III : Relational Model: Structure, Relational Algebra, Fundamental Operations, Set – Intersection, Natural Join, Division and Assignment Operation. Extended Relational Algebra Operations, Aggregate Functions.

UNIT–IV : Functional Dependency: Functional Dependency, Fully Functional Dependency, Partial Dependency, Transitive Dependency, Multi Valued Dependency. Normalization, Normal Forms (1NF, 2NF, 3NF, BCNF, 4NF, 5NF). Problems on Normal forms.

91 Applied Mathematics-II

UNIT - I : Set Theory: Set, Subsets operations on set, Venn diagram, algebra on sets, Cartesian product of sets, Binary relations, Properties of binary relation, Relation matrix and the graph of relation, Partial order relations, Equivalence relations, Equivalence Classes, Composition of relations.

UNIT - II : Functions - definition, types of function, Invertible functions composition of functions. Counting - Permutation, Combinations, The pigeonhole principle, recurrence relation, Mathematical Induction.

UNIT - III : Algebraic Structures Semi groups & groups: Binary operations, Semi groups, isomorphism and Homomorphism, Product and Quotient of semi groups, Groups, subgroups, products and Quotient of groups. Lattices: - Lattice concepts, isomorphic Lattices, Properties of lattices, Finite Boolean algebras.

UNIT - IV : Graph Theory: Basic concepts, types of graphs, Representation of graph in memory, Euler path and circuits, Hamiltonian Path and circuits. Trees:- Basic concepts, Libeled trees, Undirected trees.

92 Practical-I Practical-I Based on Paper I &II

93 Practical-II Practical-II Based on Paper III &IV

94 Practical-III Practical-III Based on Paper V &VI

Bachelor of Science (B.Sc. (IT)) Semester-III

95 Microprocessor and ALP

UNIT-I An over view of 8085, Architecture of 8086 Microprocessor. Special functions of General purpose registers. 8086 flag register and function of 8086 Flags. Addressing modes of 8086. Instruction set of 8086. Assembler directives, simple programs, procedures, and macros. Assembly language programs involving logical, Branch & Call instructions, sorting, evaluation of arithmetic expressions, string manipulation.

UNIT-II Pin diagram of 8086-Minimum mode and maximum mode of operation. Timing diagram. Memory interfacing to 8086 (Static RAM & EPROM). Need for DMA. DMA data transfer Method. Interfacing with 8237/8257. 8255 PPI – various modes of operation and interfacing to 8086. Interfacing Keyboard, Displays, 8279 Stepper Motor and actuators. D/A and A/D converter interfacing.

UNIT-III Interrupt structure of 8086. Vector interrupt table. Interrupt service routines. Introduction to DOS and BIOS interrupts. 8259 PIC Architecture and interfacing cascading of interrupt controller and its importance. Serial data transfer schemes. Asynchronous and Synchronous data transfer schemes. 8251 USART architecture and interfacing. TTL to RS 232C and RS232C to TTL conversion. Sample program of serial data transfer. Introduction to High-speed serial communications standards, USB.

UNIT-IV Advanced Micro Processors - Introduction to 80286, Salient Features of 80386, Real and Protected Mode Segmentation & Paging, Salient Features of Pentium, Branch Prediction, Overview of RISC Processors.

96 Data Structures

UNIT - I : LINKED LIST : Linked List, Representation of Single, Double, Header, Circular Single and Double Linked list, All possible operations on Single and Double linked List using Dynamic representation, Polynomial Representation and its Manipulation.

UNIT - II : STACKS : Stacks terminology, Representation of Stacks in Memory, Operation on Stacks, Polish Notations, Translation of infix to postfix & prefix expression, Infix to Postfix Conversion, Evaluation of Postfix Expression, Recursion, Problems on Recursion, Quick Sort and Tower of Hanoi Problem.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

UNIT - III : QUEUE : Representation of Queues in Memory, Circular Queue. Dequeue and Priority Queue. Operations of above Structure using Array and Linked Representation. SORTING AND SEARCHING: Selection Sort, Insertion Sort, Merge Sort, Efficiency of Sorting Methods, Big-O Notations. Hash Tables, Hashing Technique, Collision Resolution Technique.

UNIT - IV : TREES : Basic Terminologies, Representation of Binary Trees in Memory, Traversing of Binary tree, Binary Search Tree, Operation on Binary Search Tree, Heap Tree, Operation on Heap Tree, Heap Sort Method GRAPHS : Basic Terminologies, Definition and Representation of Graphs in Memory: Linked List and Matrix Representation. Traversing graphs : BSF, DFS Method.

97 Data Communication & Network-I

Unit-I:- Introduction to data communications and Networking:- Introduction, history, data communication and network architecture, protocols and standards, standards organization , layered network architecture, open systems interconnection , data communications circuits, serial and parallel data transmission, circuit arrangements and data communication networks , alternate

protocol suite. Signal , Noise , Modulation and Demodulation:- Introduction, signal analysis, Electrical Noise and Signal to Noise ratio, analog modulation systems , Information capacity, bits, Bit rate, Baud and Mary Encoding , digital modulation.

Unit –II: Transmission Media:- Introduction , Metallic cable Metallic transmission lines, transverse electromagnetic waves, characteristics , transmission line classifications, M.T line types, M.T. line equivalent circuit , Wave propagation on metallic transmission lines , metallic transmission line losses. Optical fiber Transmission media:- Introduction, Advantages and Disadvantages of optical fiber cables , Electromagnetic spectrum , O.F. Communication system block diagram, Optical fiber Construction , the physics of light, velocity of propagation, propagation of light through an Optical fiber cable, Optical fiber modes and classifications , O.F. Comparison , losses in optical fiber cables, light sources, light detectors , lasers Digital transmission:- Introduction, Pulse modulation, pulse code modulation, dynamic range, Signal Voltage-to-quantization Noise Voltage Ratio, Linear Versus Nonlinear PCM Codes, Companding, PCM Line Speed, Delta Modulation PCM & Differential PCM.

Unit –III Wireless Communication Systems:- Introduction, Electromagnetic Polarization, Rays & Wavefronts, Electromagnetic Radiation, Spherical wavefronts & the Inverse Square law, Wave Attenuation & Absorption, Optical Properties of Radio Waves, Terrestrial Propagation of Electromagnetic Waves, Skip Distance, free-Space Pathloss, Microwave Communication Systems, Satellite Communication Systems. Data Communication Codes, Error Control & data Formats:- Introduction, Data Communication Character Codes, Barcodes, Error Control, Error Detection, Error Correction, Character Synchronization. Data Communication Hardware, Data Communications Circuit, Line Control Unit, serial Interfaces.

Unit – IV Network Topologies & Connectivity Devices:- Introduction, Transmission Formats, Topologies, Collision & Broadcast Domains, Connectivity Devices, Standard Connectivity Device Logic Symbols Local Area Networks:- Introduction, IEEE Project 802, Access Control Methodologies, Medium access Control, LAN Data Link Layer, Logic Link Control Sublayer, MAC Sublayer, Ethernet.

98 Linux Operating System

UNIT - I : Logging In and Logging Out, Anatomy of Linux OS, Directory Structure, /usr Directory, File Types: User datafiles, System data files, Executable files. Naming files and directories, Spawning Processes. Shell: Creating User Account, Shell Program, bash shell, Changing shell prompt. Commands: Basic Syntax for a command, Exploring the Home Directory, ls, mkdir, rmdir, stat, cat, rm, mv, cp

UNIT - II : Editor: Vi editor. Hooking up Hardware Devices: Formatting a Floppy Disk, Gathering important system information. Backing Up and restoring the File System: Simple Backup, gzip, gunzip, tar. Printing files: Print Spool directory, Sending files to Printer.

UNIT - III : Sharing Files with other Users: Maintaining User Accounts, Changing Password, Creating Group Accounts, Granting Access to files, Changing File Ownership, Protecting Files, Making a File ReadOnly. Working with Processes: Types of processes, ps Command, Creating process, killing process, free command and top utility.

UNIT - IV : Managing Disk Space: df, du commands, Creating Additional Free Disk Space, Locating Unused Files, Setting System Clock. Communication Utilities: who, who am i, finger, mesg, write, wall, talk, Creating a message of the day. X Window System, Graphical User Interfaces: KDE and GNOME Desktop Environment.

99 E-Commerce

UNIT - I : Introduction to e-Commerce, Scope of electronic commerce, definition, e-Commerce and Trade Cycle, e- Markets, Internet e-Commerce in perspective. Value chain, Supply chain, Porters value chain model, Inter organizational value chains.

UNIT - II : Business strategy in electronic age: Competitive advantages, Strategy, Porters model, First Movers advantages, Advantages using e-Commerce. Introduction to business strategy, Strategic implications of IT, Technology, Business environment, Business capability, Existing business strategy, Strategy formulation and implementation planning, e-Commerce implementation, e-Commerce evaluation.

UNIT - III : Business to Business e-Commerce: Inter organizational transactions, The credit transaction trade cycle, A variety of transaction, Pens and things, Electronics Market, Usage of e-Market, Advantages and disadvantages of e-Market, Future of e-Market, EDI, introduction, EDI and Business.

UNIT - IV : Business to Consumer Electronic Commerce: Consumer trade transaction, Internet e-Commerce, eShop, Other e-Commerce technologies, Advantages and disadvantages of comsumer e-Commerce. Elements of e-Commerce: elements, e-Visibility, e-Shop, Online payments, Internet e-Commerce security.

100 Statistical Methods

UNIT- I: Introduction - Definition of Statistics, Importance and scope of Statistics, Limitations of statistics, Distrust of Statistics. Statistical Data Collection - Primary and Secondary data, Methods of Collecting Primary data, Sources and Secondary Data, Census and Sample Investigation. Presentation of statistical Data - Classification, Tabulation, Frequency Distribution, Diagrams and Graphs. Frequency Distributions and

UNIT- II : Measures of Central Tendency - Frequency Distribution, Continuous Frequency Distribution, Graphic Representation of a Frequency Distribution Average or Measures of Central Tendency or Measures of Locations, Requisites for an ideal Measure of Central Tendency Arithmetic: Mean Median, Mode, Geometric Mean and Harmonic Mean, Weighted Average, Relationship amongst different Averages.

UNIT- III: Measures of Dispersion, Skewness and Kurtosis - Meaning and Significance of Dispersion, Methods of Measuring Dispersion - Range, Quartile, Mean Deviation, Standard Deviation, Coefficient of Skewness, Kurtosis, Coefficient of Dispersion, Coefficient of Variation.

UNIT- IV: Correlation and Regression - Definition of Correlation, . Scatter Diagram, Karl Pearson Coefficient of Correlation, Limits for Correlation Coefficient, Definition of Regression, Lines of Regression, Regression Curves, Regression coefficients, properties of Regression coefficients, Correlation Analysis vs. Regression Analysis.

101 Practical-I Based on Paper I &II

102 Practical-II Practical-II Based on Paper III &IV

103 Practical-III Practical-III Based on Paper V &VI

Bachelor of Science (B.Sc. (IT)) Semester-IV

104 Software Engineering

Unit I Introduction to Software Engineering : The evolving role of software, Changing Nature of Software, Software myths. A Generic view of process : Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

Unit II Process models : The waterfall model, Incremental process models, Evolutionary process models, The Unified process. Software Requirements : Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

Unit III Requirements engineering process : Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management. System models : Context Models, Behavioral models, Data models, Object models, structured methods.

Unit IV Design Engineering : Design process and Design quality, Design concepts, the design model

105 Java Programming

UNIT - I : Introduction to Java: -History of Java, features of Java, getting started with Java. Java programs:- Introduction of Application & Applets. Variables: -Variable naming, variable initialization, assign values, Rules of variables, Scope of variable. Operators: -Arithmetic, Assignment, Unary, Comparison, Shift, BitWise, Logical, Conditional, New, Special, Relational. Data types:-Integers, Char, String, Float etc. Typecasting: Tokens: -Java tokens Order of precedence of operators Streams: - Input and output.

UNIT - II : Creating a class & subclass: -Declaring a class, Naming class, Rules to assign Class & Subclass, Creating a new object, Class of an object. Data members: -Declaring data member, Naming variables, using class members. Methods: -Using data members, Invoke a method, passing arguments to a method, calling method. Access Specifier & Modifiers: -Public, Private, Protected, Static & Final. Overloading: -Method overloading, Constructor overloading. Java class library: - Different types of classes. Decision making & loops:-If-then-else, Switch,? : operator, While-loop, do-while loop, for. Array: -Creating an array, onedimensional array, two-dimensional array. String: -String array, string methods. Inheritance: -Single & multiple inheritances Interfaces: -Defining interfaces, extending interfaces, implementing interfaces.

UNIT - III : Packages: -Java API packages, creating packages, accessing packages, adding a class to packages. Import statement: - Introduction & implementation of import statement. Applets:-Introduction to Applets & Application, how applets application are different creating An applet. Applets life cycle, designing a web page, creating an executable applet, running the applet, applet tags, passing a parameter to applet, HTML tag, Converting applet to application. Threads:-Overview of threads, single & multiple threads, lift cycle of threads, stopping &

blocking threads, working with threads, priority to thread, synchronization. Exceptions & Errors:-Introduction, types of error, exception, syntax of exception, handling techniques, exception for Debugging.

UNIT - IV : Event: -Event driven programming, handling an (AWT) events. Graphic class:-Introduction, the graphic classes, drawing & filling of lines, rectangle, circle & ellipse, arcs, polygons, text & fonts, creating a font class, font objects, text, coloring object. Streams:-Introduction, Abstract stream classes, file input & output. AWI Applications: -Creating a GUI using AWT toolkit, using component class, frames. Components & Control: -Textfield, textarea class, label, button, choice, list, checkbox, class, and combo. Menus: -Creating a popup menus. Image: - Type of image, Properties of an image, Displaying an image. Layouts: -Using Window Listener interface, Different types of Layout, Layout manager, Flow manager, Grid manager. Container: -Different types of container (Frame, Dialog, Panel)

106 Data Communication & Network-II

Unit-I Communication Architecture, Protocols & Architecture: Protocols, The Layers Approach, OSI Model, TCP/IP protocol suite, System Network Architecture. Internetworking: Principles of Internetworking, Bridges, Routers, Repeaters, Gateways, Connection Oriented Internetworking, Connectionless Internetworking, Connectionless Internetwork Protocol, Router-level protocol.

Unit II Transport Protocols- Transport services, Protocol Mechanism, Network services, ISO Transport Standards, TCP, UDP, TCP and UDP Packet format, Lightweight Transport Protocol.

Unit III Session Services & Protocols- Session Characteristics, OSI Session Services, Definition, OSI Session Protocol definition. DNS, FTP, HTTP.

Unit IV Digital Network, ISDN & Broadband ISDN : Overview of ISDN, Architecture and Interfaces of ISDN, Transmission structure, User Access, ISDN protocols, Broadband ISDN(B-ISDN).

107 Oracle

Unit I Introduction to Oracle - Relational database management system (RDBMS), Codd's Rules for RDBMS, Oracle as multiuser system, Logging and Logging out of Oracle, Database Administrator (DBA) and its Role, Creation of user and Password. Introduction to Structured Query language (SQL) – History and standardization of SQL, benefits of SQL, elements of SQL, Languages, Database objects, Reserve words, Keywords. Data types – Char, Varchar, Date, Number, Long, Raw and Long raw.

Unit II SQL Command – DDL command, DML command, DRL command, Aggregate function, Clauses, Set operator, Predicates, Join, Sub queries, Views. Simple reports commands. PL/SQL - Introduction to PL/SQL, Advantages of PL/SQL, PL/SQL block structure, Character Set, Literals, PL/SQL data type, Variables, Control and loop statements, Loops and Labels.

Unit III Cursor – PL/SQL Cursor, Explicit Cursors, Implicit Cursors. Exception Management - User defined, predefined exceptions, subprograms and packages - procedures, functions, package specification, body, calling sub programs, advantages of packages, cursers in packages.

Unit IV Database Triggers & Built in Packages - Database triggers-syntax, parts, statement, body, restriction, types. Built in packages – DBMS standard. DBMS OUTPUT - Collection, member functions and procedures, PL/SQL table and records, declaration, referring, maintaining row count, insertions, deletions, nested tables, varying, arrays, initialization, declaration, varrays, member functions and procedures.

108 Compiler Construction

UNIT - I : Compilers and translators, need, the structure of a compiler, Lexical Analysis, Syntax analysis, Intermediate code Generation, Optimization, Code Generation, Book keeping, Error Handling

UNIT - II : High Level programming languages, Definitions of programming languages, The lexical and syntactic structure of a language, Data elements, structures, Operators, Assignment Statements, Data Environments, Parameter transmission, Storage management.

UNIT - III : The role of the lexical analyzer, Approach to the design of lexical analyzer, Implementation of lexical analyzer, Context free grammars, Derivations and parse trees, Ambiguous grammar.

UNIT - IV : Parsers, Shift-reduce parsing, Operator precedence parsing, Top-down parsing, predictive parsers, Symbol Table , Code Optimization: The principal source optimization, Loop optimization, The DAG representation of basic blocks, Code Generation : A machine model, a simple code generator, Register Allocation and assignment.

109 Numerical Methods

UNIT - I : Roots of Non-Linear Equations : Algebraic equation, Polynomial equation, Transcendental equation, Iterative method, Starting & Stopping Iterative method, Bisection Method, False Position method, Newton Raphson Method: Secant Method, Determining all possible roots, Multiple roots of polynomial, Complex Roots using Muller's Method.

UNIT - II : Solution to Linear Equations Existence of solution, Gauss Elimination Method, Gauss elimination with pivoting, Gauss Jordan Method, Round off errors and refinement, m Conditioned system, Matrix inversion method.

UNIT - III : Linear interpolation, Lagrange Interpolation, Spline Interpolation, Interpolation with equidistant points, Least Square regression Fitting, Transcendental equations, Multiple linear regression, m conditioning in Least square

UNIT - IV : Integration & Differentiation : Trapezoidal Rule, Simpson 1/3 Rule, Simpson 3/8 rule, Gaussian Integration, Solution to differential equation (using Runge-Kutta second and fourth order methods, Multistep method for differential equations (Milne-Simpson method, Adams-bashforth

110 Practical-I Practical-I Based on Paper I &II

111 Practical-II Practical-II Based on Paper III &IV

112 Practical-III Practical-III Based on Paper V &VI

Bachelor of Science (B.Sc. (IT)) Part-III

113 Visual Basic Programming

Unit–1 :

Introduction to VB and its common controls - Screen Components (IDE), Constants. **Variables**: Declaration, Scope. **Arrays**: One Dimensional, Multidimensional, and Dynamic. **Procedures**: Functions, General Subroutines, Event Subroutines, and Property Procedures. **Forms**: Creating, saving and loading forms and a project. **Concept of properties, Events and Methods, Basic Controls**: Labels, Text Box, command Button, check box, Option button, Picture and Images. Common Properties: Name, Caption, Fore Color, Back Color, Border Style, Height,, Width, Left, Top, Enable, Visible, Font, Text, Picture etc... **Common Events**: Load, Activate, Click, DblClick, LostFocus, GotFocus, Change, KeyDown, KeyUp, Keypress, Mouse Up, MouseDown, Mouse Move etc.

Unit–2:

VB Statements and Advanced Controls - Control Flow and Looping Statements: IF-THEN, IF-ELSE Ladder, SELECT CASE, FOR-NEXT, DO-WHILE, WHILE-WEND, WITH-ENDWITH. **Standard Functions**: MsgBox, InputBox, RGB, RND, String Manipulation, Numeric and Date Controls and their properties. **Events and methods**: ComboBox, ListBox, RichTextBox, DriveListBox, DirListBox, FileListBox, Common DialogBox, ImageList, ToolBar, StatusBar. Common Methods: SetFocus, Show, Hide, Load, Unload, Zorder, Move, Add Item, Remove Item, Clear, Refresh.

Unit–3:

MDI and Database Programming with VB - MDI: Adding/Removing forms, MDI menu creation and property settings. Creating and Validating (Setting Contraints) DataBase, Establishing Relations. **Data Controls**: Properties and Methods. **Data Bound Controls**: List, Combo and Grid. **ADO Control**: ADO object model, Establishing Connection, Open Database Connectivity, Cursor Types and Locking, ADO Object Methods (AddNew, Update, Delete).

Unit–4:

Object Oriented Programming In VB - Standard Module: Concept, Sub Main, Scope of Functions and Variables, **Class Module**: Concept, Creating class using Class Builder, Adding Properties and Methods. Debugging: Finding Syntax errors, Finding Logical Errors by Executing with trace, watch and Breaking points. **Runtime Error Handling**: Trapping, Handling and Redirecting the program flow. Use of Err Object and properties like Error Number, Error Description

Unit–5:

Active–X, Reports and Project Building - Active-X Controls: Creation, Registering, Using. **Reports**: Designing with Data Environment: Command Hierarchies, Data Report. Client Server Interaction in VB. Introduction to Web Designing in VB.

20/03/2021

Off. Principal,
S.S. Manlar College, Nagpur

Unit –I: - C Sharp Concepts

Introduction to C Sharp, the main method, program output, printing & formatting output, compilation & execution, Namespace Declaration, Common Language Platform, General structure of C Sharp program, Value type, Default Constructor, Struct type, Enumeration type, Reference type, Class Type, Object Type, String Type, Interface type, Array type, Delegate type, Predefined types, Concept of Boxing & Unboxing, Array types, Variables & Parameters, Operands, Statements. Expression, operators.

Unit –II: - C Sharp Classes and Methods

C Sharp Objects, Classes, Objects as Data type, creating classes, Using an Object member function, Providing constructor, Types of class members, Inheritance, Controlling access to Members of class, Garbage collector, implementing classes, Class library and Name Space, Methods, Structure of a method, Method overloading, implementing method, class containing functions, statements and control.

Unit –III: - C Sharp – Struct, Enum, Arrays and String

Struct types, Struct decleration, Struct modifier, Struct Interface, Enums, Enumerator Base type, Enum modifiers, Enum Members, Enum values and operations, Concept of Arrays, Passing array as parameters, Array initialization, Accessing array member, Arrays object, Array list (adding, deleting, searching data from array list), String operations, converting objects to string, String builder, File and folder operations, reading and writing text files, reading and writing binary files,

Unit – IV: - DOT NET (.NET) Overview

Introduction to .NET, the origins of .NET, .NET framework overviews (a common substrate for all development, key design goals, Mega Data, Multiple language integration and support, Name spaces), .NET framework Base classes, User and program interfaces (user interface, Windows Forms, Web Forms, Console application), Program interface, Web Services.

Unit – V: - Introduction to Common Language Runtime (CLR)

Requirement of .NET application (Assembly, Module, Type), common type systems (Custom types, Boxing & Unboxing value types), Megadata (Attributes, Custom Attributes), Managed Data (Managed Heap, Garbage collector), Garbage collector optimization, pinning objects.

BOOKS

20/03/2021

Off. Principal,
S.S. Maniar College, Nagpur

115 SQL Server

Unit – 1 : Overview of SQL

SQL Language, Role of SQL, SQL features & benefits, Simple Database, Retrieving Database, Summarizing Database, Adding data to database, Deleting-Updating,-Protecting Data, Creating Database, SQL and Database Management, SQL Standards, SQL & Networking, The Proliferation.

Unit – 2 : SQL Basics & Queries

Statements, Names, Data Type, Constants, Expression, Built-in functions, Missing Data, Queries – Select Statement, Query Result, Simple Query, Duplicate Row, Row selection, Search Selection, Sorting query results, Rules for single table, Multiple table queries, Summary queries, Subqueries and queries expression.

Unit – 3 : Updating Data

Adding data to database, Deleting data from database, Modifying data in Database. **Transaction Processing-** Transaction and Multi-user processing, Locking levels, Shared and Exclusive locks, Deadlocks, Advanced Locking Techniques.

Unit – 4 : Database Structure

Creating a Database, Data definition language, Table definition, Constraint definition, Aliases and Synonyms, Indexes, Managing Database Objects, Database Structure, Database Structure and the ANSI/ISO Standards, SQL Security.

Unit – 5 : Programming with SQL

Embedded SQL, Programmatic SQL Techniques, Simple embedded SQL Statements, Data retrival in Embedded SQL, Cursor based deletes and updates, Cursor and Transaction Processing.

116 Practical based on Group A

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

117 Data Communication & Networks

Unit – 1: Data Communication

Data Transmission- Concept & Terminology, Analog & Digital data transmission, Transmission Impairment, Transmission Media. **Data Encoding-** Digital data, Analog Data, Digital signal, Analog signal. **Digital Data Communication-** Asynchronous and Synchronous transmission, Error detection technique, Interfacing. **Data Link Control -** Line configurations, Flow control, Error control, Data link control protocols. Multiplexing- Frequency division multiplexing, Synchronous time division multiplexing.

Unit – 2: Data Communication Networking

Circuit Switching- Communication Networks, Circuit switching, Single Node network, Digital switching concept, Control Signaling. **Packet Switching-** Packet switching principles, Virtual circuits and Datagrams, Routing, Traffic control, X.25. **LAN & MAN-** LAN, MAN Technology, Bus/Tress and Star topologies, Optical Fiber Bus, Ring Topology, Medium Access Control Protocols, LAN/MAN standards.

Unit – 3: Communication Architecture

Protocols & Architecture- Protocols, The Layered Approach, OSI Model, TCP/IP protocol suite, System Network Architecture. **Internetworking-** Principles of Internetworking, The Bridge, Routing with Bridges, Connectionless Internetworking, Connectionless Internet work protocol, Router-level protocol, Connection Oriented Internetworking.

Unit – 4: Protocols

Transport Protocols- Transport services, Protocol Mechanism, Network services, ISO Transport Standards, TCP & UDP, Light Weight Transport Protocol. **Session Service & Protocols-** Session Characteristics, OSI Session Service definition, OSI Session Protocol definition.

Unit – 5: Digital Network

ISDN & Broadband ISDN- The integrated digital network, Overview of ISDN, Transmission structure, User Access, ISDN protocols, Broadband ISDN.

20/03/2021

Off. Principal,
S.S. Maniar College, Nagpur

118 System Simulation

UNIT – 1

Introduction To Simulation: - Introduction, Advantage & Disadvantage of simulation, Concept of System, System Environment, Components of System, discrete & Continuous System, Models of System, Types of Models, Static & Dynamic Physical Model, Static & Dynamic Mathematical Model, Principles Used in Modeling. **System studies & Simulation: -** Subsystem, Corporate & Full Corporate Model, Environment Production & Management Segments, Types of System Study, System Analysis, System Design, System Postulation, Techniques of Simulation, Types of System Simulation.

UNIT – 2

Continuous System Simulation: - Continuous System Model, Analog Computers, Analog methods, Hybrid Computers, Digital-Analog Simulators, Continuous System Simulation Languages (CSSLs), CSMP III, Hybrid Simulation, Feedback Systems, Simulation of an Autopilot, Interactive Systems, Real-Time Simulation. **Discrete System Simulation: -** Discrete Events, Representation of Time, arrival Patters, Generation Of Arrival Pattern, Simulation of Telephone System, Delayed Calls, Simulation Programming Task, Gathering Statistics, Discrete Simulation Languages.

UNIT – 3

Statistical Models in Simulation: - Review of Terminology and Concepts, Useful statistical Models, Stochastic Variables, Discrete Probability Functions, Continuous Probability Functions, Measures of Probability Functions, Discrete Distribution, Continuous Distribution, Poisson Process, Empirical Distribution. **Simulations of Computer Systems: -** Introduction, Simulation Tools (Process Orientation & Event Orientation), Model Input (Modulated Poisson Process, Virtual Memory Referencing), High-Level Computer-System Simulation, CPU simulation, Memory simulation.

UNIT – 3

Simulation Software: - History of Simulation Software, Selection of Simulation Software, Examples Simulation, Simulation in C++, Simulation in CSIM, Simulation Packages (Arena, Automod, Deneb/QUEST, Extend, Micro Saint, ProModel, Taylor ED, Witness), Experimentation and Statistical Analysis Tools, Trends in Simulation Software (High-Fidelity Simulation, Data Exchange Standards, Internet, Old Paradigm vs. New Paradigm, Component Libraries, Distributed Manufacturing Simulation/High Level Architecture, Embedded Simulation, Optimization.

UNIT – 4

Introduction to GPSS: - GPSS Programs, General Description, Action Times, Succession Events, Choice of Paths, Simulation of Manufacturing Shop, Facilities and storages, Gathering statistics, Conditional Transfers, Program Control statements, Data structure in GPSS. **GPSS Examples: -** Priorities and Parameters, Standard Numerical Attributes, Functions, Simulation of supermarket, Transfer Model, Logic Switches, Testing Conditions, GPSS Model of a Simple Telephone System, Set Operations.

UNIT – 5

Introduction to SIMSCRIPT: - SIMSCRIPT programs, SIMSCRIPT system Concept, Organization of a SIMSCRIPT program, Names and Labels, SIMSCRIPT Statements, Defining the system, Defining the Telephone System Model, Referencing Variables, MAIN Routine, Arrival Event, Timing Routine, Disconnect Event, Closing Event, Data structure in SIMSCRIPT. **Management of Sets in SIMSCRIPT: -** Definition of Sets in SIMSCRIPT, Set Organization, Set Control, Telephone System Model, Gathering Statistics in SIMSCRIPT, Searching Arrays, Searching Sets.

20/03/2021

Off. Principal,
S.S. Maniar College, Nagpur

119 Software Engineering

Unit – 1:

Introduction to software Engineering – The Role of Software Engineering, History of Software Engineering, The Role of Software Engineer, The Software Life cycle, The Relationship of Software Engineering to Other Areas of Computer Science The Relationship of Software Engineering to other Disciplines. **Software: Its Nature and Qualities** – Classification of software Qualities, Representative Qualities, Quality Requirements in Different application Areas, Measurement of Quality.

Unit – 2:

Software Engineering Principles – Rigor and Formality, Separation of Concern, Modularity, Abstraction, Anticipation of Change, Generality, Incrementality. **Software Design** – Software Design Activity and its Objectives, Modularization Techniques, Object-Oriented Design.

Unit – 3:

Software specification – The Uses of Specification, Specification Qualities, Classification of Specification Styles, Verification of specifications, Operational Specifications, Descriptive Specifications. **Software verification** – Goals and Requirement of Verification, Approaches to Verification, Testing, Analysis, Symbolic Execution, Debugging, Verifying Other Software Properties.

Unit – 4:

The Software Production Process – Software Production Process Models: Waterfall Model, Evolutionary Model, Transformation Model, and Spiral Model. Organizing the Process. **Management Of Software Engineering** – Management Functions, Project Planning, Project Control, Organization, Risk Management.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

120 Practical based on Group B

121 Project Management

122 Data Warehousing & Mining

123 Legal Aspect of I.T

Unit – 1

Cyber Law: Introduction, Defining Cyber Law, Legal Identity – Netizen, Private International Law in Cyberspace. **IT Law:** History of Information Technology Act 2000, About IT Law, IT Act 2000 and E-mails.

Unit – 2

Cryptography, Application of Cryptography, IT Act 2000 and Technology. **Business:** Classification of Internet Business Models, E-Business models, E-Commerce and Security, Online payment facilities, IT Act 2000 and E-Commerce. Electronic Contract: E-Agreement and Web Surfing, Terms of service contracts, General precautions, Cyber Contracts, IT Act 2000 and E-Contracts.

Unit – 3

Collecting Personal information, Means of identifying personal identity, Online Ads and Profilers, Protecting Privacy policy for an E-Commerce site, Privacy Law and Problems, Personal Data protection Mark, IT Act 2000 and Issue of Piracy.

Unit – 4

Digital content rights, Copyright Infringements, Steps to protect the content on WWW, Reconceptuliazing Copyright in a digital society, Software Patents, Domain name system and Trademarks, Emergence of Cyberspace Trademark Law, IT Act 2000 and Issue of Copyright, Patent and Trademark.

Unit – 5

Age of Cyber Crime: The Interface, Establishing the nature of Offence, Economy/ Cost of Cyber Crime, Future Impact, Strategy to Combat Cyber Crime, IT Act 2000 and Cyber Crime.

20/03/2021

Off. Principal,
S.S. Maniar College, Nagpur

124 Practical based on Group C

Master in Computer Science (M.Sc. (Comp. Science)) Semester-I

125 Discrete Mathematical Structure

Unit-1 : Fundamental – Sets and Subsets, operations on sets, sequence, Division in the integer, Matrices, Mathematics Structures. Logic-Proposition and Logical Operation Conditional Statements, Methods of Proof, Mathematical Induction, Mathematics Logic- Statements and Notation, Connectives ,Normal Forms ,The Theory of Interface for the statement Calculus ,Inference Theory of the Predicate Calculus,

Unit-2 : Counting- Permutation, Combination, The pigeonhole Principle, Recurrence Relations. Relational and Digraphs- Product sets and Partitions, Relations and Digraphs, Paths in Relations and Digraphs Properties of Relations, Equivalence Relations, Computer Representation of Relations and Digraph, Manipulation of Relations, Transitive Closure and Warshall's Algorithms. Functions-Definition and Introduction, Function for Computer Science, Permutation Functions, Growth of Functions.

Unit-3 : Graph Theory : Basic Concept of Graph Theory, Euler Paths and Circuits, Hamiltonian Paths and Circuits. Other relations and Structure- Partially Ordered Sets, Lattices Finite Boolean-Algebra, Functions of Boolean Algebra's, Boolean function as Boolean Polynomials. Tree-Introduction Unidireted Tree, Minimal Spanning Trees.

Unit-4 : Semigroups and Groups: Binary Operations Revisited, Semigroups, Products and Quotations of Groups. Introduction to computability –Languages Finite –State Machines, Semigroup, Machines and Language.

126 Programming in Java

Unit-1 : Java and Internet, Features of java: security, portability, multithreading, etc, Bytecode, Datatypes, variables and Arrays, Operators, Classes : declaring objects, methods, constructor, overloading constructor, garbage collection, finalize() method, static variable and method, final variable, command line argument. Inheritance: super keyword, final with inheritance. Packages and Interfaces. Exception handling : Overview, types, Uncaught exception, try -catch block, multiple catch, nested try, throw, throws, finally, bulit-in and user- defined exception. Multithreading : Life Cycle, Thread class and Runnable Interface, isAlive(), join(),Priorites, Synchronization : sleep() , run(). Interthread communication : wait(), notify(), notifyAll(), deadlock. String Handling.

Unit-2: Wrapper classes, Applet: Applet Class, Architecture, Life Cycle, Display methods, HTML APPLET Tag, Passing parameter to Applet AWT : working with Windows, Controls, Layout Manager, Menus. Swings. Event handling.

Unit-3: JDBC : Architecture, JDBC-ODBC bridge driver, SQL Package, ResultSet and its methods. Networking : Socket, Reserve socket, Internet Addressing, InetAddress, TCP/IP client socket, TCP/IP server socket, URL, URL Connection, Datagram. RMI : Introduction, Architecture, Remote Interface, java.rmi. server package, class naming, creating Rmi server and client ,transmitting files using rmi, client side callback, RMISECURITYMANAGER class, RMI Exception, Stub and Skeleton.

Unit-4: Servlet : Life Cycle, Tomcat, javax. servlet package, reading servlet parameter, javax.servlet.http package, handling http request and response with HTTPGET and HTTPPOST, cookies,session tracking. JSP : Introduction, Types of JSP tags, Application using JSP and Servlet. JavaBeans : Advantages of Beans, BDK, JAR files, Introspection, Developing Beans using BDK

127 Digital Electronics and Microprocessor

Unit-1 : Number System and Data Representation Number System : Binary, Octal, Decimal and Hexadecimal number system and their inter conversion. Binary Codes : BCD, Excess3 , Parity, Gray, ASCII, EBCDIC codes and their advantages and disadvantages. Data Representation : Positive , negative ,maximum and minimum number representation (related to 8 bit number), real number representation, underflow, overflow , range and accuracy. Binary Arithmetic : Binary addition, decimal subtraction using 9's and 10's compliment, binary subtraction using 1's and 2's compliment, multiplication and division. Logic gates: Truth table, properties and symbolic representation of NOT, AND, OR, NOR , NAND, EXOR, EXNOR gates. NOR and NAND gates as a universal gates .

Unit-2 : Boolean Algebra: Laws and Identities of Boolean algebra, DeMorgan's Theorem , use of Boolean Algebra for simplification of logic expression, K-Map for 2,3,4 variables, simplification of SOP and POS logic expression using K-Map. Combinational circuits: Half adder, Full Adder, Parallel adder, Half subtractor, Full Subtractor, 4-bit binary adder subtractor, Multiplexer, Demultiplexer, Decoder, Encoder, Parity detector.

Unit 3 : Sequential Circuits : Flip-Flops : Construction and working of RSFF, JKRSFF, DFF, TFF, JKFF, and JKMSFF . Counters : Construction and working of asynchronous, synchronous, up-down counter, shift registers and their types, Ring counter, Jonhson counter with their time diagram.

Unit-4 : Architecture of 8086 and Assembly Language Programming Block diagram of 8086, Pin diagram of 8086, Addressing modes, Instruction set: Data transfer, Arithmetic, Logical, String manipulations, Control Transfer, Unconditional branch, Conditional branch, Flag, Processor control. Assembler directives and operators, simple assembly programs.

128 Advanced DBMS and Administration

Unit-1 : Relational Database design: Functional dependencies, and Normalization Normal forms based on primary keys (1 NF, 2 NF, 3 NF, BCNF, 4 NF, 5 NF) Loss less joins and dependency preserving decomposition Query Processing: Query Processing Stages, Query Interpretation, Equivalence of Expressions, Query Resource Utilization, Query Execution Statistics, Query Execution Plan, Estimation of Query Processing Cost, Table Scan, Sample Index Access, Fill Factor, Multiple Index Access, Methods for Joining Tables (Nested Loop, Merge Join, Hybrid Join, Multiple Join) Structure of a Query Optimizer

Unit-2 : Transaction Processing & Concurrency Control: Concept and definition of transaction, ACID properties, serializibility, Prioritization, states of transaction, Types of failure, desirable properties of transaction schedules and recoverability, serial usability of schedules, levels of transaction consistency, deadlocks, long duration transactions, transaction performance, transaction processing as implemented in contemporary database, management system. Concurrency Control, locking techniques, techniques based on time-stamp ordering, multiple granularity. Crash Recovery: failure classification, recovery concepts, database backup, recovery concepts based on deferred update and on immediate update. Shadow paging, check points, on-line backup during database updates, crash recovery techniques. Client/Server database: Evolution of client concept, Client/Server environment, characterization of Client/Server computing. Functions of clients server , application partitioning, the two-layer and threelayer architectures, communication between clients and servers.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

Unit-3 : Oracle Database Architecture and Administration: Oracle database architecture, Design, Creation, Migration and Management of Oracle Databases and related database schemes, Data Dictionary views and standard package Maintaining the control, Redo Loa files, Managing Tablespaces and Data Files, Storage structure and relationships, Managing rollback segment, Managing tables, Indexes, Managing data Integrity, Managing password security and resources, Managing users, Privileges, roles. Oracle Backup and Recovery Strategies: Backup and recovery considerations, Oracle recovery structure and processes, Oracle backup and recovery configuration, Physical backup, Complete recovery of an Oracle database, Incomplete recovery of an Oracle database with Archiving, Oracle Export / Import utilities, Oracle standby database.

Unit-4 : Oracle Tuning and Troubleshooting:Oracle performance tuning methodology,'Oracle alert and trace files, Tuning the shared pool, Buffer Cache, Redo Log buffer, Database configuration and I/O issues, Using Oracl Blocks efficiently, Optimizing sort operations, Rollback segment tuning, Monitoring and detecting lock contention, SQL issues and tuning considerations for different application. Integrity, Security: Need for Database Integrity, Integrity Constraints, Non-Procedural and Procedural Integrity Constraints Specifications in SQL, Introduction to Database Security issues, Authorization and use.

129 Practical 1 based on theory paper-1 and 2

130 Practical 2 based on theory paper-3 and 4

131 Seminar 1

Master in Computer Science (M.Sc. (Comp. Science)) Semester-II

132 Windows Programming using VC++

Unit-1 : Windows, Visual C++, Application Frameworks Fundamentals and MFC Libraries View Class. Introduction, MFC, ATL and WFC, Windows Programming Model, Components, Application Framework, MFC Library, Event Handling, Mapping Modes and Scrolling Views, Graphic Device Interface, Colors and Fonts, Modal Dialog and Windows Common Control, Modeless Dialog and Windows Common Dialog, ActiveX Controls and Internet Explorer Common Controls, Win32 Memory Management, Bitmaps, Message Processing and Multithreaded Programming.

Unit-2 : Document View Architecture : Menus, Keyboard Accelerators, Rich Edit Control and Property Sheets, Tool bar and Status Bars, Reusable Frame Window Base Class, Separating the Documents from its View, Reading and Writing Documents- SDI applications, MDI applications, Printing and Print Preview, Splitter Windows and Multiple Views, Context-Sensitive Help, DLL's, MFC Programs without Documents or View Classes

Unit-3 : Active X: COM, Automation and OLE : Component Object Model, Automation, Uniform Data Transfer- Clipboard Transfer and OLE, Drag and Drop, Structured Storage, OLE Embedded Components and Containers, Introducing the Active Template Library, ATL and ActiveX Controls.

Unit-4 : Database Management: Database Management with Microsoft ODBC, Database Management with Microsoft Data Access Objects, OLE DB Templates. Programming for the Internet: TCP/IP, Winsock, WinInet, Programming the Microsoft Internet Information Server, ActiveX document Servers and the Internet, Introducing the Dynamic HTML, Visual C++ for Windows CE.

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

133 Theory of Computation and Compiler Construction

Unit-1 : Finite Automation and Regular Expression : Finite State systems, Basic Definitions, Non - deterministic finite Automata, Finite Automata with moves, Regular Expressions, Two way finite automata, Finite automata with output, Application on Finite Automata. Properties of Regular Sets : The pumping lemma for Regular Sets, Close properties of Regular sets, Decision

Algorithms for Regular Sets. Context Free Grammars : Motivation and Introduction, Context Free Grammar, Derivation Tree, Simplification of context Free Grammars, Chomsky Normal form, Greibach normal form, The existence of inherently ambiguous context free languages. Properties of Context free languages : The pumping lemma for CFL's , Closure properties of CFL's, Decision Algorithm for CFL's

Unit-2 : Push Down Automata : Informal description, Definitions, Push – Down Automata & Context free languages. Turing Machine : Introduction, The Turing Machine Model, Computable languages and functions , Techniques Turing Machine construction, Modification of Turing Machines, Churchs Hypothesis, Turing Machine as enumerators, Restricted Turing Machine equivalent to the basic model. Undecidability : Problems, properties of recursive and recursively enumerable problem, Turing Machine and undecidable problem, Rice theorem, Tool for proving CFL undecidable, Greibach's Theorem. The Chomsky : Regular Grammars, Unrestricted Grammars, Context – Sensitive languages, Relation between classes of languages.

Unit-3 : Introduction to Compilers : Compilers and translators, need, the structure of a compiler, Lexical Analysis, Syntax analysis, Intermediate code Generation, Optimization, Code Generation, Book keeping, Error Handling, Compiler writing tools. Basic parsing Techniques: Parsers, Shift-reduce parsing, Operator precedence parsing, Top-down parsing, predictive parsers, automatic construction of efficient parsers : LR parsers the canonical collection of LF (O) items, constructing SLR parsing tables, constructing LALR parsing tables, Ambiguous grammar.

Unit-4 : Syntax directed translation : syntax directed translation schemes, implementation, intermediate code,postfix notation, parse tree and syntax trees, tree- address code, quadruple, triple, translation of Symbol Table: Data Structure, Representation of Scope Information, Code Optimization: The principal source optimization, Loop optimization, The DAG Representation of basic blocks, Value number and algebraic laws, Global data-flow analysis. Code Generation : Object Programmers Problems in code generation, A machine model, a simple code generator, Register Allocation and assignment, Code Generation from DAG's Peephole Optimization.

134 Computer Architecture and Organization

Unit-1 : Principle of computer design : Software, hardware interaction, layers in computer architecture, central processing and machine language instruction, addressing modes, instruction types, instruction set selection, instruction and execution cycle.

Unit-2 : Control Unit : Data path and control path design, microprogramming v/s hardwired control, pipelining in CPU design, RISC v/s CISC, superscalar processors.

Unit-3 : Memory subsystem : Storage technologies, memory array organization, memory hierarchy, interleaving , cache memory and virtual memory including architectural aids to implement these.

Unit-4 : Input/ Output Processing : Bus Interface, Data transfer techniques, I/O interrupts and channels,. Performance evaluation : SPECmarks , Transaction Processing Benchmarks.

135 Computer Graphics

Unit-1 : Introduction of computer Graphics and its applications, Overview of Graphics systems, Video display devices, Raster scan display, Raster scan systems, video controller, Raster scan display processor, Random scan display, random scan systems, color CRT monitor, Flat panel display, Interactive input devices, Logical classification of input devices, Keyboard, mouse, Trackball and spaceball, Joysticks, Image scanner, Light pens, Graphics software, Coordinates representations, Graphics functions.

Unit-2 : Line drawing algorithms, DDA, Bresenham's, Circle generating, Mid-point circle algorithm, Ellipse generating, Polygon , Scan-line polygon fill, Boundary fill.

Unit-3 : Basic transformation's, Translation, Rotation, Scaling, Matrix representation's & homogeneous coordinates, Composite transformation's, Reflection, Two dimensional viewing, Two dimensional clipping, Line, Polygon, Curve, Text. 3D-transformation, Projection, Viewing, Clipping. Spline representation, Cubic spline, Bezier curve, Bezier surfaces, Beta spline, B-spline surfaces, Bspline curve, Hidden surfaces, Hidden lines, Z-buffer.

Unit-4 : Fractal's geometry Fractal generation procedure, Classification of Fractal, Fractal dimension, Fractal construction methods. Color models, XYZ, RGB, YIQ, CMY & HSV, Shading algorithms, Shading model, Illumination model, Gouraud shading, Phong shading.

136 Practical 3 based on theory paper-5 and 6

137 Practical 4 based on theory

138 Seminar 2

Master in Computer Science (M.Sc. (Comp. Science)) Semester-III

139 Data Communication and Network

Unit-1 : Introduction: Network structure and architectures and services OSI reference model. The Physical Layer: theoretical basis for data communication, transmission media. Analog Transmission, Digital Transmission, Transmission and Switching, ISDN. The Data Link Layer: Design issues, Error detection and correction, Elementary data link protocols, sliding window protocol, protocols performance, protocols specification and verification. Examples of the Data link layer. Network Layer: Design issues, routing algorithms, Congestion control algorithms, Internet working, Examples of the network layer.

Unit-2 : The Transport Layer: Design issues, Connection Management. The session layer: Design issues and remote procedure call. The Presentation Layer: Design issues, data compression techniques, cryptography. The Application Layer: Design issues, file transfer, access and management, virtual terminals.

Unit-3 : Network Security Fundamentals: Introduction, security Vulnerabilities and Threats, Classification of Security Services. Cryptography: Encryption principles, Conventional Encryption DES, IDEA, Algorithms, CBC, Location of Encryption Devices key Distribution.

Unit-4 : Message Digests and Checksums, Message Authentication, Message Digests, Hash Functions and SHA, CRCs. Public key Systems: RSA Diffie-Heliman, DSS, Key Management. Intruders: Intrusion Techniques, Intrusion Detection, Authentication, Password- Based Authentication, Address- Based Authentication, Certificates, Authentication Services, Email Security, Firewalls, Design Principles, Packet Filtering, Access Control, Trusted Systems, Monitoring and Management.

140 Software Engineering

Unit-1 : Introduction to Software Engineering : The evolving role of software, Changing Nature of Software, Software myths. A Generic view of process : Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models. Process models : The waterfall model, Incremental process models, Evolutionary process models, The Unified process. Software Requirements : Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

Unit-2 : Requirements engineering process : Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management. System models : Context Models, Behavioral models, Data models, Object models, structured methods. Modeling with UML . Design Engineering : Design process and Design quality, Design concepts, the design model. Creating an architectural design : Software architecture, Data design, Architectural styles and patterns, Architectural Design.

Unit-3 : Object-Oriented Design : Objects and object classes, An Object-Oriented design process, Design evolution. Performing User interface design : Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation. Testing Strategies : A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging. Product metrics : Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

Unit-4 : Metrics for Process and Products : Software Measurement, Metrics for software quality. Risk management : Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan. Quality Management : Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards.

141 Neural Network

Unit-1 : Introduction: Feedforward Neural Networks: Artificial Neurons, Neural Networks and Architectures: Neuron Abstraction, Neuron Signal Functions, Mathematical Preliminaries, Neural Networks Defined, Architectures: Feed forward and Feedback, Salient Properties and Application Domains of Neural Network Geometry of Binary Threshold Neurons and Their Network: Patterns Recognition and Data Classification, Convex Sets, Convex Hulls and Linear Separability, Space of Boolean Functions, Binary Neurons are pattern Dichotomizes, Non-linearly separable Problems, Capacity of a simple Threshold Logic Neuron, Revisiting the XOR Problem, Multilayer Networks.

Unit-2 : Supervised Learning I: Perceptrons and LMS: Learning and Memory, From Synapses to Behaviour: The Case of Aplysia, Learning Algorithms, Error Correction and Gradient Descent Rules, The Learning Objective for TLNs, Pattern space and Weight Space, Perceptron Learning

Algorithm, Perceptron Convergence Theorem, Perceptron learning and Non-separable Sets, Handling Linearly Non-Separable sets, á-Least Mean Square Learning, MSE Error Surface and its Geometry, Steepest Descent Search with Exact Gradient Information, ì-LMS: Approximate Gradient Descent, Application of LMS to Noise Cancellation

Unit-3 : Supervised Learning II: Backpropagation and Beyond: Multilayered Network Architectures, Backpropagation Learning Algorithm, Structure Growing Algorithms, Fast Relatives of Backpropagation, Universal Function Approximation and Neural Networks, Applications of Feedforward Neural Networks, Reinforcement Learning

Unit-4 : Neural Networks: A Statistical Pattern Recognition Perspective: Introduction, Bayes Theorem, Classification Decisions With Bayes Theorem, Probabilistic Interpretation Of A Neuron Discriminant Function, Interpreting Neuron Signals As Probabilities, Multilayered Networks, Error Functions And Posterior Probabilities, Error Functions For Classification Problems Generalization: Support Vector Machines and Radial Basis Function Networks: Learning from Examples and Generalization, Statistical Learning Theory Briefer, Support Vector Machines, Radial Basis Function Networks, Regularization Theory Route to RRBFNs, Generalized Radial Basis Function Network, Learning In RRBFNs, Image Classification Application, Other Models for Valid Generalization

142 ASP.Net

Unit-1 : ASP.NET programming model: Introduction, event driven programming over http, http protocol, structure of ASP.NET page, ASP.NET component model, ASP.NET Provider model, Anatomy of ASP.Net Page: Invoking page, Page class, Page Life cycle. ASP.NET Core Server controls: Generalities of Server Controls, Properties, events and methods of Control class, HTML controls: Generalities of HTML controls, HTML Containers, HTML input controls.

Unit-2 : Web controls: Generalities of Web Control, core web control, misc web control, Validation controls: Generalities of validation controls, Gallery of controls, Programming with Web forms; HtmlFrom Class, Multiple forms, cross page postings, Page errors, Page Personalization. Ritch Page Composition: Working with master page, working with themes, working with wizards,ADO.NET data Providers, Connecting to data sources: connection strings, connection pooling, Executing commands: ADO Data Readers, Data Adapters, working with transactions, procedures etc. Data container objects: Data sets, Data tables, Data Relations, Data binding models: expressions and components.

Unit-3 : Creating bindable grid of data: DataGrid Control, GridView control, Managing list of records: ListView control and Managing views of records: DetailView Control, FromView Control, Initialization of Application: HttpApplicationClass, Application module, methods and events of HttpApplication Class, The global.asax file, HttpContext Class, Server Object, HttpResponse Object, HttpRequest Object.

Unit-4 : ASP.NET state management: Application state, Session State: working with session state, customizing session state, view state of page. ASP.NET caching: Caching Application data, the Cache Class, ASP.NET Security: Using Form authentication, membership and role management API, Security related controls, AJAX Enabled web services: Web services as application specific services, remote call via web services,

143 Practical I based on theory paper-1 and 2

144 Practical II based on paper 3 and paper4

145 Seminar 3

Master in Computer Science (M.Sc. (Comp. Science)) Semester-IV

146 Data Mining

Unit-1 : Introduction to Data Mining: Why Mine Data? Commercial Viewpoint, Scientific Viewpoint Motivation, Definitions, Origins of Data Mining, Data Mining Tasks, Classification, Clustering, Association Rule Discovery, Sequential Pattern Discovery, Regression, Challenges of Data Mining, Data Mining-Data: What is Data? Attribute Values, Measurement of Length, Types and Properties of Attributes, Discrete and Continuous Attributes, Types of data sets, Data Quality, Data Preprocessing, Aggregation, Sampling, Dimensionality Reduction, Feature subset selection, Feature creation, Discretization and Binarization, Attribute Transformation, Density.

Unit-2 : Data Mining: Exploring Data: Data Exploration Techniques, Summary Statistics, Frequency and Mode, Percentiles, Measures of Location: Mean and Median, Measures of Spread: Range and Variance, Visualization, Representation, Arrangement, Selection, Visualization Techniques: Histograms, , Box Plots, Scatter Plots, Contour Plots, Matrix Plots, Parallel Coordinates, Other Visualization Techniques, OLAP : OLAP Operations, Data Mining Classification: Bask Concepts, Decision Trees, and Model Evaluation: Classification: Definition, Classification Techniques, Tree Induction, Measures of Node Impurity, Practical Issues of Classification, ROC curve, Confidence Interval for Accuracy, Comparing Performance of Two Models, Comparing Performance of Two Algorithms.

Unit-3 : Data Mining Classification: Alternative Techniques: Rule-Based Classifier, Rule Ordering Schemes, Building Classification Rules, Instance-Based Classifiers, Nearest Neighbor Classifiers, Bayes Classifier, Naive Bayes Classifier, Artificial Neural Networks (ANN), Support Vector Machines. Data Mining Association Analysis: Basic Concepts and Algorithms: Association Rule Mining, Frequent Itemset Generation, Association Rule Discovery : Hash tree, Factors Affecting Complexity, Maximal Frequent Horible Closed Itemset, Alternative Methods for Frequent Itemset Generation, FPgrowth Algorithm, Tree Projection, Rule Generation, Pattern Evaluation, Statistical Independence, Properties of A Good Measure, Support-based Pruning, Subjective Interestingness Measure.

Unit-4 : Data Mining Cluster Analysis: Basic Concepts and Algorithms: Applications of Cluster Analysis, Types of Clusters, Clustering Algorithms: 'K-means and its variants, Hierarchical clustering, Density based clustering. Graph-Based Clustering, Limitations of Current Merging Schemes, Characteristics of Spatial Data Sets, Shared Near Neighbor Approach, ROCK (RObust Clustering using linKs), Jarvis Patrick Clustering, SNN Clustering Algorithm, Data Mining Anomaly Detection: Anomaly jOutlier Detection, Importance, Anomaly Detection Schemes, Density-based: LOF approach

147 Artificial Intelligence & Expert System

Unit-1 : AI problems, AI Techniques, Tic-tac-toe, Question Answering, Problem as a state space search, A water jug problem, production system, Control strategies, Heuristic Search, Problem Characteristics, Production system characteristics, Design of search programs AI Search techniques :- Depth-first, Breadth-first search, Generate-and-test, Hill climbing, Best-first search, Constraint satisfaction, Mean-ends-analysis, A* Algorithm, AO* algorithm.

Unit-2 : Knowledge Representation:- Representations and mappings, Knowledge Representations, Issues in Knowledge Representation, Predicate Logic:- Representing Instance and Isa Relationships, Computable Functions and predicates, Resolution, Natural Deduction, Logc programming, Forward versus Backward Reasoning, Matching, Control knowledge, Expert System.

Unit-3 : Games playing : Minimax search procedure , adding alpha-beta cutoffs, additional refinements, Planning :- Component of a planning system, Goal task planning, Nonlinear planning, Hierarchical Planning.

Unit-4 : Understanding, Understanding as Constraint satisfaction, Natural Language Processing, Syntactic Processing, Unification grammars, Semantic Analysis, Introduction to pattern recognition, Parallel and Distributed AI, Psychological Modeling, Distributed Reasoning Systems,

148 Design and Analysis of Algorithm

Unit-1 : Elementary Algorithmics: Introduction- Problems and Instances- The Efficiency of algorithms- Average and worst case Analysis. Asymptotic Notation: A notation for the order of – Other asymptotic notationConditional asymptotic notation- Asymptotic notation with several parameters- Operations on asymptotic notation. Analysis of Algorithms: Introduction- Analyzing control structures- Average case analysis- Amortized Analysis- Solving recurrences.

Unit-2 : Greedy Algorithms: Making change- General Characteristics of Greedy algorithms- Minimum spanning trees and shortest paths- Knapsack Problems- Scheduling. Divide and Conquer: Introduction- Multiplying large numbers- The general template- binary searchsorting- Finding the median- Matrix multiplication- Introduction to cryptography.

Unit-3 : Dynamic Programming: The Principle of Optimality- making change the knapsack problem- shortest paths- Chained matrix multiplication- approaches using recursion- Memory functions.

Unit-4 : Back tracking & Brach Bound: Traversing trees- Depth first search of directed and ndirected graphBreadth first search- Back tracking- Branch and bound- The minimax principle, Introduction to NPCompleteness; Classes P and NP- Polynomial reductions- NP- Complete Problems NP- Hard problemsNon- Deterministic algorithms.

149 Embedded System

Unit-1 : Introduction to Embedded Systems: Embedded Systems, Processor Embedded into a System, Embedded Hardware Units and Devices in a System, Embedded Software in a System, Examples of Embedded Systems, Embedded System-on-chip (Soc) and Use of VLSI Circuit Design Technology, Complex Systems Design and Processors, Design Process in Embedded System, Formalization of System Design, Design Process and Design Examples, Classification of Embedded Systems, Skills Required for an Embedded System Designer 8051 and Advanced Processor Architectures, Memory Organization and Realworld Interfacing: 8051 architecture,

Real World Interfacing, Introduction to Advanced Architectures, Processor and Memory Organization,Instruction-Level Parallelism, Performance Metrics,Memory-Types, Memory-Maps and Addresses, Processor Selection, Memory Selection, Devices and Communication Buses for Devices Network :Types and Examples, Serial Communication Devices, Parallel Device Ports, Sophisticated Interfacing Features in Device Ports, Wireless Devices, Timer and Counting Devices, Watchdog Timer, Real Time Clock, Networked Embedded Systems, Serial Bus Communication Protocols, Parallel Bus Device Protocols-Parallel Communication Network Using ISA, PCI, PCI-X and Advanced Buses, Internet Enabled Systems-Network Protocols, Wireless and Mobile System Protocols

Unit-2 : Device Drivers and Interrupts Service Mechanism: Programmed-I/O Busy-wait Approach without Interrupt Service Mechanism, ISR Concept, Interrupt Sources, Interrupt Servicing (Handling) Mechanism, Multiple Interrupts, Context and the Periods for Context Switching, Interrupt Latency and Deadline, Classification of Processors Interrupt Service Mechanism from Context-Saving Angle, Direct Memory Access, Device Driver Programming, Programming Concepts and Embedded Programming in C, C++ and Java: Software Programming in Assembly Language (ALP) and in High-Level Language 'C' 235 , C Program Elements: Header and Source Files and Preprocessor Directives, Program Elements: Macros and Functions, Program Elements: Data Types, Data Structures, Modifiers, Statements, Loops and Pointers, Object-Oriented Programming, Embedded Programming in C++, Embedded Programming in Java, Program Modeling Concepts: Program Models, DFG Models, State Machine Programming Models for Event-controlled Program Flow, Modeling of Multiprocessor Systems, UML Modelling

Unit-3 : Interprocess Communication and Synchronization of Processes, Threads and Tasks: Multiple Processes in an Application, Multiple Threads in an Application, Tasks, Task States, Task and Data, Clearcut Distinction between Functions, ISRS and Tasks by their Characteristics, Concept of Semaphores, Shared Data, Interprocess Communication, Signal Function, Semaphore Functions, Message Queue Functions, Mailbox Functions, Pipe Functions, Socket Functions, RPC Functions, Real Time Operating Systems : OS Services, Process Management, Timer Functions, Event Functions, 28 Memory Management, Device, File and 10 Subsystems Management, Interrupt Routines in RTOS Environment and Handling of Interrupt Source Calls, Real-time Operating Systems, Basic Design Using an RTOS, Rtos Task Scheduling Models, Interrupt Latency and Response of the Tasks as Performance Metrics, OS Security Issues,

Unit-4 : Real time Operating System ProgrammingI: MicrodOS-II and VxWorks, Basic Functions and Types of RTOSES, RTOS mCOS-II, RTOS VxWorks, Realtime Operating System ProgrammingII: Windows CE, OSEK and Real-time Linux Functions,Windows CE, OSEK, Linux 2.6.x and RTLinux, Design Examples and Case Studies of Program Modeling and Programming with RTOS l:Case Study of Embedded System Design and Coding for an Automatic, Chocolate Vending Machine (ACYM) Using Mucos RTOS, Case Study of Digital Camera Hardware and Sofware Architecture, Case Study of Coding for Sending Application Layer Byte Streams on a TCPIIP Network Using RTOS Vxworks Design Examples and Case Studies of Program Modeling and Programming with RTOS 2: Case Study of Communication Between Orchestra Robots, Embedded Systems in Automobile, Case Study of an Embedded System for an Adaptive Cruise Control (ACC) System in a Car, Case Study of an Embedded System for a Smart Card, Case Study of a Mobile Phone Software for Key Inputs, Embedded Software Development Process and Tools: Introduction to Embedded Software Development Process and Tools, Host and Target Machines, Linking and Locating Software, Getting Embedded Software into the Target System, Issues in Hardware-Software Design and Co-design, Testing, Simulation and Debugging Techniques and Tools: Testing on Host Machine: Simulators, Laboratory Tools

150 Practical based on theory paper-1 to 4

151 Project

152 Seminar

20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur