



Kalahandi University

Bhawanipatna

COURSES OF STUDIES

FOR THREE YEAR DEGREE COURSE

In

BACHELOR IN COMPUTER APPLICATION

(BCA)

[Semester pattern]

Published by:
Kalahandi University, Bhawanipatna
Dist-Kalahandi, Odisha

COURSE STRUCTURE

BCA Course shall consist of twenty-four papers of three hours duration of 100 marks out of which 20% shall be earmarked for internal Assessment and a project carrying 200 marks at the 3rd Year.

	Paper Name		Marks
SEMESTER-I	1.1	English for Technical Communication	80+20
	1.2	Computer Fundamental	80+20
	1.3	Application Softwares	80+20
	1.4	Lab-I (Application of Software)	80+20
SEMESTER-II	2.1	Mathematics-I	80+20
	2.2	C Language	80+20
	2.3	Operating System (CUL, GUI)	80+20
	2.4	Lab-II (C-Language)	80+20
SEMESTER-III	3.1	Numerical Analysis & Statistical Methods (Math-II)	80+20
	3.2	Data Structure	80+20
	3.3	Introduction to Relational Database Management System	80+20
	3.4	Lab-I (RDBMS)	80+20
SEMESTER-IV	4.1	Computer Organisation	80+20
	4.2	Object Oriented Programming Language Using C++	80+20
	4.3	Human Resource Management	80+20
	4.4	Lab-II (C++)	80+20
SEMESTER-V	5.1	Operation Research (Math-III)	80+20
	5.2	Data Communication & Computer Network	80+20
	5.3	VB, Internets Web Development	80+20
	5.4	Lab-I (VB, HTML)	80+20
SEMESTER-VI	6.1	System Analysis & Design	80+20
	6.2	Computer Oriented Accounting System	80+20
	6.3	Object Oriented Programming Language (JAVA)	80+20
	6.4	LAB-II (JAVA)	80+20
	6.5	PROJECT	200
		Total Marks	2600

SEMESTER-I**1.1: ENGLISH FOR TECHNICAL COMMUNICATIONS****(Full Mark: 100, Internal=20, Term End=80)****UNIT-I:** Grammar: Articles, tenses, voice, prepositions.**UNIT-II:** Vocabulary & Usages : Pairs and groups of words, synonyms; antonyms; idioms and phrases; one-word substitution.**Unit-III:** Reading & Comprehension: Correct pronunciation; note making, reporting**Unit-IV:** Letter Writing**Unit-V:** Composition Writing (of not more than 250 words).**RECOMMENDED BOOKS:**

A practical English grammar By A.J. Thomson & A.N. Martinet (Oxford University Press)

Strengthen your writing By V.R. Narayan Swamy. (Orient Longman) Chapters-2, 3, 6, 9

Spoken English Higher By V. Sasikumar & P.V. Dhamija (Tata McGrawHill).

Higher Secondary practical English Grammar By R.N. Panda (Banirupa, Buxi Bazar Bazar, Cuttack) Chapters-3,4,5,10,12,14,15,16. '

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1.2 : COMPUTER FUNDAMENTALS**(Full Mark: 100, Internal=20, Term End=80)****UNIT-I: Introduction:** Basic anatomy of a computer; input and Output, Control unit; ALU and memory; working of a computer History of computer; classification of computer; working of Micro computer, Input and Output devices and secondary storage devices.**UNIT-II: Data Representation:** Number system; decimal, octal, hexadecimal and binary, conversions 01 number system, Binary arithmetic, BCD, ASCII, EBCDIC codes.**UNIT-III: Computer Software and Hardware:** Meaning of computer software hardware; difference between software and hardware, types of software, firmware, computer language, Machine level, assembly language and high level language. Translators, assemblers, interpreters and compilers.**UNIT-IV:** Operating System: Definition and function; Batch processing, Spooling; Multiprogramming Multiprocessing; Time sharing; Online and real time processing; Library and Utility programs.**UNIT-V: Data Communication & Computer Networks:** Element of a communication system, Data transmission modes; media and speed; digital and analog transmission; communication processors. Asynchronous and synchronous transmission; Switching technique; Network technologies; LAN & WAN; Communication protocols; Distributed Data Processing.**RECOMMENDED BOOKS:**

1. Computer Fundamental By P.K. Sinha Chapters: 1-5, 7-10, 12, 14-16.

2. Computer for Beginner By V.P. Jaggi and S. Jain. Chapters: 1, 2, 3, 5, 7.

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1.3 : APPLICATION SOFTWARES

(Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Word Processing (MS-Word): Basics of word processing, text selection, opening document and creating document, sharing document, quitting document, cursor control, printing documents, using the interface (menu, toolbar), editing text (copy, delete, move etc.) finding and replacing text, spell check feature, auto correct feature, grammar facility, auto text, character formatting, page formatting, document enhancement, creating tables and news paper columns adding borders and shading, adding headers and footers, setting up multiple columns, sorting blocks, adjusting margins and hyphenating documents creating master documents, creating data source, merging documents using mail merge feature for labels and envelopes, graphics, using documents and wizards, introductions to desk publishing (PM7)

UNIT-II: Spreadsheet (MS-Excel): Work sheet basics, data entry cells, entry of numbers, text and formulae, moving data in worksheet, moving around the work sheet, selecting data range, using the interface (tool bar, menus) Editing basics, Working with workbooks, saving & quitting, call referencing, formatting and calculations, calculations and worksheet using auto fill, working with formulae, efficient data display with data formatting (number formatting, date formatting etc.) working with ranges, worksheet printing, working with graphics & charts, adding formatting text data with auto format, creating embedded chart using chart wizard, sizing and moving parts, updating charts, changing chart types creating separate chart sheets, adding titles, legend and grid lines, printing charts, intro to Macros.

UNIT-III: Introduction to MS-Power Point: How to create a simple presentation in power point and present the power point show through power point view.

UNIT-IV: MS-Access: Introduction to Database, Generating tables & Forms, Query & Report, Forms & Query. Single Column report Groups/totals reports, summary reports, Tabular reports Customizing report

Unit-V: MS-Access: Creating forms without using wizard, customizing forms, Modifying Forms, How to import & Exports, using condition in a Macro, Data transfer using macro. Introduction to Access Basic, Event procedure, Access basic Constructs etc.

RECOMMENDED BOOKS:

1. Microsoft Office by Dinesh Maidisani
2. Microsoft Office by Ramesh Bangia
3. Complex Computer Course Tips

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1.4 : LAB-I : APPLICATION SOFTWARES

(Full Mark: 100, Internal=20, Term End=80)

Practical using MS-Word, MS-Excel, MS- Power Point and MS-Access

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SEMESTER-II

2.1 : MATHM ATICS-I

(Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Analytical Geometry: Planes, Lines, Spheres

UNIT-II: Theory of Equations: Relation between roots and coefficients, transformation of equation; multiple roots, Descartes Rule of sings (statement only) and application.

Unit-III: Groups: Algebraic system, Semi-group, groups, subgroups, Lagrange's Theroms; cyclic and permutation groups.

UNIT-IV: Calculus-I: Asymptotes, curvatures, curve tracing, quadrature; rectification; volumes and areas of simple surfaces of revaluation.

UNIT-V: Calculus-II: Partial Derivatives, total differentiation; homogeneous function; change of variables; Taylor's theorems of two variables (Statement only); Simple problems maxima and minima (Excluding Lorange's multiplier method).

RECOMMENDED BOOKS:

1. Analytic solid Geometry, By Sahanty Narayan. (S. Chand & Comp. New Delhi. Chapters : 2 (2.1-27), 3(3.1-3.7) & 6(6.1-6-4).
2. A text book of Algebra and theory of Equation by Chandrika Prasad (Pathasala Private Limited; Allahabad) Chapter: 7(7.1-7.6) & II.
3. Higher Calculus Bv G Samal, U. K. Mohapatra, S.C. Jena & T. Biswal, (Vidyapuri, Balu Bazar) Chapter: 1 -9, 11 & 12 (12.1-12.5).

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2.2 : 'C' Language

(Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Introduction of 'C', Basic structure of C Programs, Programming style & Executing C Program, Introduction to character Set, C Tokens, Keywords & Identifiers, Constants, variables & Data type uses & declaration. Introduction of operators, Type conversions in expressions, operator procedure and associativity mathematical functions.

UNIT-II: Introduction to decision making with IF statement, The if-else statement, Nesting of If-else statement and the Else... if ladder. The switch statement, the ?: Operators and go to statement Introduction to while statement, the Do statement, The FOR statement and Jump in loops.

UNIT-III: Introduction to Arrays, declaration and initialization of one-dimension Array, Dynamic Arrays, and more about Array. Declaring and initializing string variables, Reading strings from Terminal, writing to string, string handling functions and table of strings.

UNIT-IV: Introduction of user-defined function definition of function and its declaration Nesting of functions. Passing Arrays to function and passing strings to function. Introduction of structure variables and its declaration and initialization. Accessing structure members. Array of structures, with in structures and structure & functions, Unions, size of structure and Bit field.

UNIT-V: Introduction to pointers, Declaring Pointer variables, Initialization 'pointer variables, chain of pointer, pointer expression, Array of pointers, pointers to function, pointers and structures. Introduction to defining and opening a file: Closing a file, Input/Output operations on file Error handling during I/O operations and Random access to files.

RECOMMENDED BOOKS:

- 1) ANSI C by E. Balaguruswamy.
- 2) Y.P.Kanitkar, Let Us C

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2.3 : OPERATING SYSTEM (CUI, GUI)

(Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Evolution of operating System, Resident monitor, batch processing, multiprogramming, multiprocessing time sharing, realtime System, I/O interrupts, DMA, dual mode operation, operating system services.

UNIT-II: File System, File concepts, file Attributes, File operation, File type, File Structure, access methods, sequential access, index sequential access and direct access, directory structure, structure, single level, two level, tree structure, file protection and access control.

UNIT-III: Process concepts, process state transition diagram, process control block, process scheduling schedulers, CPU scheduling.

UNIT-IV: CPO/IO burst cycle, scheduling algorithms; FCFS, SJF, Priority, round robin. Deadlock, resource allocation graph, deadlock prevention, detection and recover.

UNIT-V: Logical verses physical address space, overlays, swapping, contiguous allocations single partition and multiple partition, internal and external memory fragmentation, non-contiguous allocation, paging, demand paging, concept of virtual memory, page replacement algorithms FIFO, Optimal and LRU.

RECOMMENDED BOOKS:

1. Operating system concept By A Siberchatz and Peter R B. Galvin (Addition Wesley) Chapters: 1 - 5, 7-10
2. Operating system By Andrews S. Tanenbaum (PHI)
3. An Introduction to operating system By H.M Dietel (Addition Wesley)
4. Operating System by Stallings, W.

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2.4 : LAB-II (C-LANGUAGE)

(Full Mark: 100, Internal=20, Term End=80)

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SEMESTER-III

3.1 : NUMERICAL ANALYSIS AND STATISTICAL METHOD (MATH-II)

(Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Errors and interpolation; numerical differentiation and integration.

UNIT-II: Solution of algebra and transcendental equation, solution of system of linear equations, numerical solution of ordinary differential equations.

UNIT-III: Sampling and sample designs, classification and tabulation of data, Diagrammatic and graphical presentation of data, Measure of central value, moments, measure of dispersion and skewness and kurtosis, correlation and regression.

UNIT-IV: Probability and expected values, theoretical distribution, binomial; poisson and Normal Distribution.

UNIT-V: Test of Hypothesis, x-test, t-test, s-test, Analysis of variance.

RECOMMENDED BOOKS:

1. Numerical Analysis by Dutta & Jena : Chapter. 1, 2(2.1-2.14), 3(3.1-3.3&3.7-3.14), 4(4.1-4.6), 5(5.1-5.4) & 6(6.1-6.3)
2. Statistical methods by S.P. Gupta (S. Chand & Sons)

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3.2 : DATA STRUCTURE

(Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Data, Data Structure, Algorithmic notation. Complexity (Fundamental Idea Only). Operations on data structure Linear array (Representation, traversal, insertion, deletion, reverse), Two-dimensional array (representation only) record, record structure, representation of records in memory, parallel array

Stack, operation on stack, few application of stack linear queue, circular queue, priority queue.

UNIT-III: Single linked list Memory representation of linked list traversing linear list, searching a linked list, insertion into and deletion error linked list, Reverting a linked list, Circular list Double linked list

UNIT-IV: Tree, Binary tree, Representation of Binary tree in memory, Binary tree traversal. Binary search tree. Threaded binary tree, AVLtree (Idea only.)

UNIT-V: Searching Linear and Binary Search Sorting; selection, Bubble, Insertion, Quick, Heap and Merge sort

RECOMMENDED BOOKS:

1. Data Structure by S. Lipshutz (Tata McGraw Hill)

2. An Introduction to the Data Structure with application by JP. Tremblay & P.G Sorenson (McGrawHill)
3. Data Structure using C, Andrew S. Tanenbaum

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3.3 : INTRODUCTION TO RELATIONAL DATABASE MANAGEMENT SYSTEM (RDBMS) (Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Basic concept of database system: Advantages of DBMS, 3 level architecture for DBMS, Data independence, Database access, DDL, DML. Database administrator. Data modelling, E-R diagram

UNIT-II: Database file structure: sequential, Indexed-sequential and direct access files, indexed and hashing techniques.

UNIT-III: Relational Model: Structure of relational databases, Base table, view.

UNIT-IV: Relational algebra, set operation, relational operation, selection, projection, join and division operations, Normal forms.

UNIT-V: Hierarchical data model: Tree structure diagrams, physical and logical database records, data retrieval, Virtual records. Internal representation like HSAM, HISAM, HDAM and HI DAM. Network data model: Data structure diagrams, DBTG CODASYL MODEL, DBTG retrieval and update facilities.

RECOMMENDED BOOKS:

1. An Introduction to database system By. C.J. Date (Narosa) Chapters 1-6,12,14,16-19, 24-26. 2,
2. An Introduction to database system By B.C Deasi (Golgatia) Chapter: 2, 4

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3.4 : LAB-I (RDBMS):

(Full Mark: 100, Internal=20, Term End=80)

Practical using Unit-I, Unit-II, Unit-III, Unit-IV& Unit-V3.3

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SEMESTER-IV

4.1 : COMPUTER ORGANISATION

(Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Combinational and sequential circuits, Boolean algebra, truth tables, synthesis of logic functions using AND, OR, NOT, NAND, NOR, XOR gates, minimization of logical expressions, Karnaugh maps, flip-flops, master slave and edge triggered flip-flops, registers and shift registers, counters, decoders, multiplexers.

UNIT-II: Arithmetic and logical organization: Addition and subtraction using 1 's and 2's complement method, binary adder. Parallel adder, carry look ahead adder, multiplication, Booth's algorithm, Division, floating point operations.

UNIT-III: CPU Organisation: Instruction and instruction sequencing, Instruction formats (Zero, one and two address instruction)

UNIT-IV: Addressing modes (Register, Absolute, Immediate, Indirect, Indexed, auto increment and auto decrement) stack queue and subroutine.

UNIT-V: Input-Output Organisation: Addressing input-Output devices. Interrupts, handling multiple devices, Vector Interrupts, Simultaneous Request, Direct memory access (DMA). Channels.

RECOMMENDED BOOKS:

1. Computer Organization By Hamacher (Tata McGraw Hill)
2. Computer System Architecture 3/ed (PHI)
3. Computer Organisation by Tanenbaum, AS.

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4.2 : OBJECT ORIENTED PROGRAMMING LANGUAGE USING C++

(Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Introduction, data types, keywords, operators, expression conditional, iterative, branching statements, function, pointer, structure.

UNIT-II: OOP in C++, Object, Class

UNIT-III: Constructor, Destructor, Operator, Overloading and type co version.

UNIT-IV: Inheritance, Function Overloading

Unit-V: Virtual function, input-output files.

RECOMMENDED BOOKS:

1. Object Oriented programming with C++ By E. Balaguruswamy (TMH).
2. OOP in Turbo C++ By Robert Lafors (Galgotia publication)

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4.3 : HUMAN RESOURCE MANAGEMENT

(Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Human Resource Management: Definitions, Objectives, Functions, Scope and Activities of HRM, The Indian Scenario and HRM.; Evolution of Stages of Human Resource Management: Scientific Management by F.W Taylor, The Human Relations Thought of Elton Mayo, Theory 'X' and Theory Y by Douglas Mc Gregor.

Human Resource Management in India: History, Genesis and Growth, evolution, Environment of HRM; Personnel Policies: Concept, Nature, Types of Policies, Formulation & Essentials of Sound Personnel Policies.

UNIT-II: Human Resource Planning: Concept& Objectives, Need and Importance, Process & Levels, Problem and Guidelines for Human Resource Planning. Job Analysis & Job Design: Concept and Uses of Job analysis, Job Description and Job Specification in Job Analysis, Role Analysis, Concept of Job Design, Job redesign in India.

Recruitment and Selection: Meaning Methods and Sources of Recruitment, Recruitment Practices in India, Meaning, process of selection tests and interviews, placement and selection.

Training and Development: Training of Operatives, Executive Development, career Planning and Development and Human Resource Development

UNIT-III: Job Evaluation: Concept, Process and Objectives, advantages and Limitations, Methods, Essentials of Successful Job evaluation.

Wage and Salary Administration: Objectives, Principles, Essentials of a sound wage structure, factors affecting wages, methods of wage payment, wage policy in India, performance appraisal.

Discipline: Needs and Importance of discipline, code of discipline, Disciplinary action, Punishment, Reinstatement, Retrenchment, Discharge Procedure, Types of Misbehavior, Misconduct

Grievance: Meaning, Causes, Redressal of Grievance, Grievance Procedure, Grievance Redressal in India.

UNIT-IV: Motivation: Meaning, Definition, Types of Motivation, Maslow Theory, Two factor Theory, Hezberg's Theory, Expectancy Theory, Reinforcement Theory, Adami Equity Theory, Quality of Work Life Programmes.

Morale: Meaning, Importance, Factors Influencing Morale, Impact of Morale, Distinction between motivation and Morale.

UNIT-V: Personality Development: Meaning, heredity Vs. Environment, Role of Learning, Personality Traits, Healthy Personally, Personality and the Job.

HR in Information Technology in Organisation: Buying . Talents, Borrowing Talents, Building Talent ITHR in Practice, HR Assessment in IT Industry.

RECOMMENDED BOOKS:

1. Human Resource Management by OB. Gupta.
2. H.R.M. by Biswajeet Pattanayak

3. HRM by Nirmal Singh
4. Management of Human resources by Lallan Prasad & A.M Bannerjee.
5. Personnel Management by C.B. Mamuria
6. HRD by P.Subbarao
7. HRM by K.Aswathappa

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4.4 : LAB-II (C++)

(Full Mark: 100, Internal=20, Term End=80)

Practical using Unit-I, Unit-II, Unit-III, Unit-IV & Unit-V of 4.2

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SEMESTER-V

5.1 : OPERATION RESEARCH

(Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Linear Programming Problems, Simplex method.

UNIT-II: Duality, Integer Programming.

UNIT-III: Assignment and transportation methods.

UNIT-IV: Elements of Game Theory, PERT; CRM.

UNIT-V: Sequencing.

RECOMMENDED BOOKS:

1. Operation Research BySD. Shama (Kedar Nalh Ram Nath & Co) Chapter 1 -3, 5.-10 of Unit-II & 1, 6 & 7 of Unit-I V

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5.2 : DATA COMMUNICATION AND COMPUTER NETWORK

(Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Introduction to computer networks: Advantages of networks, structure of the communication network, point-to-point and multi drop circuit, data flow and physical circuits, Network topologies and design goals, switched and non-switched options, channel speed and bit rate, voice communication and analog wave forms, bandwidth and frequency spectrum, digital signals, modem, synchronous and asynchronous transmission Communication among computers.

Traffic control and accountability: WAN and LAN, connection oriented and connection less networks, classification of communication protocols. Time Division Multiple Access (TDMA), Time Division Multiplexing (TDM), Carrier sense (Collision) system, token passing,(priority system)

UNIT-II: Layered Protocols, Network and OSI model: Goals of layered protocols, network design problems, communication between layers, layers of OSI, OSI Status, Pooling/Selection Protocols; Character and bit protocols, binary synchronous control (BSC) formats and control cedes HDLC, HDLC Options, HDLC frame format code Transparency and synchronization, HDLC control field, commands and responses, HDLC, transmission process, HDLC subsets.

UNIT-III: Local Area Network & Primary attributes of LAN: Broad band and base band LAN, IEEE LAN Standard, Relationship of 802 standards to the ISO/CCITT Model; Connection options with LANS LLC and MAC protocols, data Units. LAN topologies and protocols, CSMA/CD and IELE 805.3. collisions, token Ring (Priority). IEEE 802.5, Priority scheme, token bus and IEEE 802.4, Switching & Routing.

UNIT-IV: TCP/IP, TCP/IP and internetworking, TCP/IP operations and sockets IP address structure, major features of IP, IP datagram, Major IP services. IP source routing value of transport layer, TCP major features of TCP; passive and active opens.

UNIT-V: Transmission control blocks (TCP), TCP segments, user datagram protocols(UDP) Route discovery protocol. Application layer protocol, Personnel computer as a server. Linked the PC to main frame computer, file transfer in personnel computers, personnel computers and Local Area Network.

RECOMMENDED BOOKS:

1. Computer Networks 2/e by U. alack (PHI Publication) Chapters. 1-4, 6,10,11
 2. Computer Networks By A.S. Tanenbum (PHI Publication) Chapters: 1, 2 (Excluding 2.1 and 1.6), 3
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5.3 : VISUAL BASIC, INTERNET AND WEB DEVELOPMENT

(Full Mark: 100, Internal=20, Term End=80)

UNIT-I: Introduction of Visual Basic – What's it All about: culture shock 2 Basic toolbar, functions of the bottoms & Visual Basic Toolbox ASTROLL-Project Window, Form Window & properties Windows & Toolbox. Objects, events, properties & methods, Learning Visual Basic. 32 Bit and 16 Bit application. Naming Conventions, Desing Consideration.

Forms and controls (Part one) Form Objects, Picture box object, Command bottom object & menu object Listing code & safeguarding Project

Forms and Control (Part two) - Text box object List box objects & properties, Events & methods. Timer objects, frame object, option bottom object check box object Line object, Image Object, Shape Object, Drive List box object Directory List Box objects & File list Box Object

UNIT-II: Creating Modules & Procedures 2 Private and public sub procedures, passing parameters to procedures, function procedures, variables, Arrays & constants, Various types Arrays & constants. Print & Print form methods Saving & Reading data 2 data control & database files, Sequential files. Control arrays, Error trapping, Help files. Mouse & Keyboard Events, Dynamic link libraries, Drag-and-drop, multiple document interface & Pre-defined dialogs. Database in visual Basic 2 Table & Queries, Creating database in Access Creating tables, & Queries, Modifying table etc.

UNIT-III: Internet: Introduction to Internet, Understanding Internet, Hardware and software requirement for internet, internet service providers, protocols (HTTP. FTP, TCP/IP)IP address, URL. World Wide, Web Browser, Web Page.

UNIT-IV: HTML: Standard text formatting tags, color, linking image-Loading, table frame set, form.

UNIT-V: DHTML: Java script, Data types, programing logic, functions, use of functions in HTML code, objects in Java script

RECOMMENDED BOOKS:

1. The Internet Complete Reference By Hartey Hann (TMH)
2. HTML 4.0 By E. Stephen Mark, Jaaen Plaff BPB Pub.
3. HTML 4.0 By Molly E. Holzschalg. Techmedia
4. Visual basic by Mandeep S. Bhatia
5. Visual Basic by Ramesh Bangia

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5.4 : LAB-I (VB, HTML)

(Full Mark: 100, Internal=20, Term End=80)

Practical using Unit-I, Unit-II, Unit-III, Unit-IV & Unit-V of 5.3

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SEMESTER-VI**6.1 : SYSTEM ANALYSIS AND DESIGN****(Full Mark: 100, Internal=20, Term End=80)**

UNIT-I: Overview of system analysis and design: Business system concept, system development life cycle, project selection, feasibility study, analysis, design, implementation testing and maintenance.

UNIT-II: Project selection: Source of project request, managing project review and selection, preliminary investigation.

UNIT-III: Feasibility Study: Technical and Economical feasibility, cost and benefit analysis.

UNIT-IV: System requirement specification and analysis, fact finding technique, data flow diagrams, data dictionary, process organization and integrations.

UNIT-V: Decision tree and tables, structured English detailed design, modularization, module specification, file organization and database design.

RECOMMENDED BOOKS:

1. Analysis and Design of Information System by James A.S.
2. System Analysis and Design by Award EH.
3. System Analysis and Design by Lee B.S. (NCC)
4. Interactive Computer Based System by Andriole, S.J.

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6.2 : COMPUTER ORIENTED ACCOUNTING SYSTEM**(Full Mark: 100, Internal=20, Term End=80)**

UNIT-I: Book keeping and accounting: Meaning to book keeping and accounting, accounting concept and convention accounting equation, accounting procedure and practical system of books keeping journal, ledger, cashbook, and subsidiary book, banking transaction and bank reconciliation statement, trial balance and final accounts, depreciation.

UNIT-II: Introduction to financial management goals and key activities relationship of finance to accounting. Basics of capital budgeting cost and benefits, investment appraisal criteria, net present value, benefit and cost ratio, internet rate of return, pay back period and accounting rate of return.

UNIT-III: Long term financing, retraining earnings, equity, preference and debenture capital, term loan, public issue, right issue, private placement, financial institutions.

UNIT-IV: Element of working capital management, cash management credit management, inventory management and working capital financing.

UNIT-V: Entry of financial transactions and preparation of trial balance by using one of the commercially available accounting packages such TCS-EX of Tally package.

RECOMMENDED BOOKS:

1. V Double Entry Books Keeping By Juneja Chaula and Sexena, Chapters: 1, 8,10,11.
2. Financial Management Theory and Practice By Prasanna Chandra, Chapters: 1, 7,16,18, 22, 25.
3. Single User and Multi User Ex package, Tata Consultancy services.

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6.3 : OBJECT ORIENTED PROGRAMMING LANGUAGE (JAVA)**(Full Mark: 100, Internal=20, Term End=80)**

UNIT-I: Application Program: Overview of Java language, constants, variable, data types, operators, expressions, decision making, branching, loops.

UNIT-II: OOP in Java, class, object and methods, Array, Sting, String buffer, Vectors, Interfaces.

UNIT-III: Package

UNIT-IV: Multi threading, Managing errors, Exception.

Unit-V: APPLLET PROGRAM : AWT, SWING, JDBC.

RECOMMENDED BOOKS:

1. Java Complete Reference TMI PUBLICATION
2. Programming with Java a Primer By E. Balaguruswamy
3. Complete reference in Java-Patricia Naughton

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6.4 : LAB-II (JAVA)**(Full Mark: 100, Internal=20, Term End=80)**

Programs using in Unit-I, Unit-II, Unit-III, Unit-IV & Unit-V of 6.3

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6.5 : PROJECT**(Full Mark: 200, Project Report=150, Viva & Presentation on Dissertation=50)**

Each student has to undergo a summer placement training of four weeks at the end of their second year course in an Industry/Business Organisation to gain firsthand experience and knowledge of Practice and prepare a project report at his own cost and has to submit a report within four weeks from the completion of such training to the principal of the concerned institution. The Report shall be examined Jointly by an internal and an external examiner in which the minimum pass marks shall be 50%.

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