



FACULTY OF ENGINEERING

IASE University

*Gandhi Vidya Mandir, Sardarshahr (Rajasthan) – 331401,
INDIA*

Teaching and Examination Scheme and Syllabus

for

**BACHELOR OF COMPUTER APPLICATIONS
(Three-Year Full Time Degree Programme)
(SEMESTER SCHEME)**

For the Sessions 2009-10, 2010-11, 2011-12

Rules And Guidelines For The Students

1. The **BACHELOR OF COMPUTER APPLICATIONS** course is a three year (Six Semester) full time degree program.

2. ELIGIBILITY FOR ADMISSION

A candidate seeking admission to the first year of the **Bachelor of Computer Applications (BCA)** course shall be required to have passed 10+2 examination in any stream from any recognized board with at least 45% marks in aggregate for general category candidates, 40% for SC/ST/OBC candidates.

3. ADMISSION PROCEDURE

Admission to the first year **B.C.A.** course shall be made on the basis of marks scored by the candidates in his/her 10+2 examination.

4. THE PROGRAMME

The **Bachelor of Computer Applications** is a three year (Six semesters) full time degree program .The course structure and program administration are as follows.

5. COURSE STRUCTURE

The Three years (six semesters) teaching consists of Theory (Lectures and Tutorials) and Practicals/Sessionals (Laboratory work, and project etc.).Examination will be held at the end of the each semester. Details of these are given in the teaching & examination scheme.

6. PROGRAMME ADMINISTRATION

6.1 Medium of Instruction

English shall be the medium of instruction and examination.

6.2 EVALUATION

(a) Each subject will be evaluated through a theory paper at the end of the semester carrying 100 marks along with continuous evaluation of sessional work carrying 50 marks. The theory paper shall be of three hour duration. The sessional work will consist

of continuous assessment of student's performance by teachers in tutorial classes, and class tests.

(b) Three class tests will be organized in each semester. The two best marks out of the three tests will be considered for the sessional marks.

(c) Evaluation of laboratory practical work will be through continuous assessment throughout the semester as well as examination at the end of the semester.

(d) The project work will be carried out in the sixth semester. The topic of the project will be approved by the Head of the Department and the entire project work will be carried out under the guidance of a department project supervisor approved by the Head of the Department. The nature of the project work will consist of varying proportions of coding, designing, testing and analysis of results. The project topic can also be taken from a live industrial problem. The report of the completed project shall be signed by the guide and submitted to the Head of the Department on or before the last working day of the sixth semester. The evaluation of the project will be done by a board consisting of two examiners.

7. Promotion

7.1 The maximum span period of a program is six years from the date of registration in the program.

7.2 The minimum marks for passing the examination for each semester shall be 50% in each sessional, 40% in End Semester Examination of each theory paper, 50% in each training or project and 45% in aggregate of all the courses (theory, sessional and project etc.) of the semester.

7.3 A student will be permitted to attend the classes of the second/fourth/sixth semesters immediately after the examination of the first/third/fifth semester's examination, as the case may be, provided he/she has appeared in the first/third/fifth semester examination respectively.

7.4 To be eligible for promotion to the 3rd semester of the program a student must have successfully cleared at least 8 papers out of the 16 papers including practicals of the first and second semesters taken together.

- 7.5 To be eligible for promotion to the 5th semester of the program a student must have successfully cleared at least 8 papers out of the 16 papers including practicals of the third and fourth semester taken together.
- 7.6 A student promoted to the third/fifth semesters, without having cleared all the papers, will have to appear and pass the back log papers of the first/third semesters along with the regular examinations of the first/third semesters and the back log papers of the second/fourth semesters along with the regular examination of the second/fourth semesters.
- 7.7 A candidate who has secured minimum marks to pass in each paper but has not secured the minimum marks required to pass in the aggregate for the semester concerned may take re-examination in not more than **two theory papers** to obtain the aggregate percentage required to pass the semester. The candidate will have to pay the requisite examination fee in order to be eligible for re-examination. In this case the marks secured by the candidate in the earlier examination in the paper concerned will be treated as **cancelled**.
- 7.8 The degree shall be awarded to the successful students on the basis of the combined results of the examinations of all the six semesters.

Award of Division:

- Securing 60% marks and above – Ist division
- Securing 50% and above but below 60% - IInd division
- Securing 45% and above but below 50% - pass
- A student who has secured 75% marks and above shall be declared to have passed in first division with honors. However, for this division the student must have cleared successfully all the subjects in **single attempt** in the final year period of his/her study.
- Similarly to be eligible for a gold medal on account of having secured first position, the student must have cleared all subjects in **single attempt** and passed with first division.

7.9 If a student (who has successfully completed the programme) wishes to reappear in one or more theory papers of the first, second, third or fourth, semesters for the purpose of **improving** his/her **marks** will be permitted to do so on payment of requisite examination fee along with the regular examinations of that semester. However, the total number of such attempts shall not exceed **four** theory papers during the span period of the programme. For this his/her previous performance in the paper/papers concerned will be treated as **cancelled**. The application for such reappearing/re-examination must be submitted before the next examination of the corresponding semester.

7.10. A student to be eligible for award of **degree** has to **clear all papers** offered during three-year programme within the **span period** of six years.

8. Attendance: All students are required to have 75% attendance in each subject and there must be 75% attendance of the student before he/she could be permitted to appear in the examination.

9. RULES FOR THE AWARD OF GRACE MARKS

Grace marks to the extent of 1% of the aggregate marks prescribed for an examination will be awarded to a candidate failing in not more than 25% of the total number of theory papers, practicals, sessionals, dissertation, viva-voce and the aggregate, as the case may be in which minimum pass marks have been prescribed; provided the candidate passes the examination by the award of such Grace marks. For the purpose of determining the number of 25% of the papers, only such theory papers practicals, dissertation, viva-voce etc. would be considered, of which, the examination is conducted by the University.

N.B.:- If 1% of the aggregate marks or 25% of the papers works out in fraction, the same will be raised to the next whole number. For example, if the aggregate marks prescribed for the examination are 450, grace marks to the extent of 5 will be awarded to the candidate, similarly, if 25% of the total papers is 3.2, the same will be raised to 4 papers which grace marks can be given.

GENERAL:-

- A candidate passes in a paper/ practical or the aggregate by the award of grace marks will be deemed to have obtained the necessary minimum for a pass in that paper/ practical or in the aggregate and shown in the marks sheet to have passed by grace. Grace marks will not be added to the marks obtained by a candidate from the examiners nor will the marks obtained by the candidate be subject to any deduction due to award of grace marks in any other paper/ practical or aggregate.
- If a candidate passes the examination but misses First or Second Division by one mark, his aggregate will be raised by one mark so as to entitle him for the first or second division, as the case may be. This one mark will be added to the paper in which he gets the least marks and also in the aggregate by showing +1 in the tabulation register below the marks actually obtained by the candidate. The marks entered in the marks-sheet will be inclusive of one grace mark and it will not be shown separately.
- Non appearance of a candidate in any paper will make him ineligible for grace marks. The place of a passed candidate in the examination list will, however be determined by the aggregate marks he secures from the examiners, and he will not, by the award of grace marks, become entitled to a higher division.
- Distinction won in any subject at the examination is not to be forfeited on the score that a candidate has secured grace to pass the examination.

Note: - The Grace marks will be awarded only, if candidate appears in all the papers prescribed for the examination.

TEACHING & EXAMINATION SCHEME
for B.C.A.–Three Year (6 Semester) Full Time Degree Programme

B.C.A. – First Year**Semester - I**

S.No.	Course No.	Subject	Period			Examination Scheme				
			L	T	P	Sessional Exam			ESE	TOTAL
						TA	CT	TOTAL		
(THEORY)										
1	BCA101	Semi Conductor Physics & Electronics	3	1	-	30	20	50	100	150
2	BCA102	Business Accounting	3	1	-	30	20	50	100	150
3	BCA103	Discrete Mathematics	3	1	-	30	20	50	100	150
4	BCA104	Programming in C	3	1	-	30	20	50	100	150
5	BCA105	Computer Fundamentals	3	1	-	30	20	50	100	150
(PRACTICALS/SESSIONALS)										
6	BCA106	Microcomputer Lab	-	1	3	50	-	50	50	100
7	BCA107	C- Programming Lab	-	1	3	50	-	50	50	100
8	BCA108	Language lab	-	1	3	50		50	50	100
		Total Hours	15	8	9					

TA- Teacher's Assessment

CT- Class Test

ESE- End Semester Examination

Total Contact Hours-32

Total Marks-1050

B.C.A. – First Year**Semester - II**

S.No.	Course No.	Subject	Period			Examination Scheme				
			L	T	P	Sessional Exam			ESE	TOTAL
						TA	CT	TOTAL		
(THEORY)										
1	BCA201	Statistical Methods	3	1	-	30	20	50	100	150
2	BCA202	Electrical Circuits	3	1	-	30	20	50	100	150
3	BCA203	Operating Systems	3	1	-	30	20	50	100	150
4	BCA204	Algorithms & Data Structure	3	1	-	30	20	50	100	150
5	BCA205	OOPs & C++	3	1	-	30	20	50	100	150
(PRACTICALS/SESSIONALS)										
6	BCA206	Electrical & Electronics Lab	-	1	3	50	-	50	50	100
7	BCA207	Data Structure Lab	-	1	3	50	-	50	50	100
8	BCA208	OOPs Lab	-	1	3	50	-	50	50	100
9		Discipline and Co-curricular activities	-	-	-	-	-	-	-	100
		Total Hours	15	8	9					

TA- Teacher's Assessment

CT- Class Test

ESE- End Semester Examination

Total Contact Hours-32

Total Marks-1150

B.C.A. –Second Year**Semester - III**

S.No.	Course No.	Subject	Period			Examination Scheme				
			L	T	P	Sessional Exam			ESE	TOTAL
						TA	CT	TOTAL		
(THEORY)										
1	BCA301	Financial & Marketing Management	3	1	-	30	20	50	100	150
2	BCA302	Numerical Analysis and Optimization	3	1	-	30	20	50	100	150
3	BCA303	Database Management Systems	3	1	-	30	20	50	100	150
4	BCA304	Fundamentals of Java	3	1	-	30	20	50	100	150
5	BCA305	Visual Basic Programming	3	1	-	30	20	50	100	150
6	BCA306	Communication Skills	3	1	-	30	20	50	100	150
(PRACTICALS/SESSIONALS)										
7	BCA307	DBMS Lab	-	-	3	50	-	50	50	100
8	BCA308	Java Lab	-	1	3	50	-	50	50	100
9	BCA309	Visual Basic Lab	-	1	3	50	-	50	50	100
		Total Hours	18	8	9					

TA- Teacher's Assessment

CT- Class Test

ESE- End Semester Examination

Total Contact Hours-35

Total Marks-1200

B.C.A. –Second Year**Semester - IV**

S.No.	Course No.	Subject	Period			Examination Scheme				
			L	T	P	Sessional Exam			ESE	TOTAL
						TA	CT	TOTAL		
(THEORY)										
1	BCA401	Digital Electronics & Circuits	3	1	-	30	20	50	100	150
2	BCA402	System Analysis & Design	3	1	-	30	20	50	100	150
3	BCA403	Internet & Intranet	3	1	-	30	20	50	100	150
4	BCA404	Networking Technologies & TCP/IP	3	1	-	30	20	50	100	150
5	BCA405	Electronic & Data Communications	3	1	-	30	20	50	100	150
(PRACTICALS/SESSIONALS)										
6	BCA406	Web programming Lab	-	1	3	50	-	50	50	100
7	BCA407	Digital Electronics Lab	-	1	3	50	-	50	50	100
8		Discipline and Co-curricular activities	-	-	-	-	-	-	-	100
		Total Hours	15	7	6					

TA- Teacher's Assessment

CT- Class Test

ESE- End Semester Examination

Total Contact Hours-28

Total Marks-1050

B.C.A. –Third Year**Semester - V**

S.No.	Course No.	Subject	Period			Examination Scheme				
			L	T	P	Sessional Exam			ESE	TOTAL
						TA	CT	TOTAL		
(THEORY)										
1	BCA501	Computer Graphics and Image Processing	3	1	-	30	20	50	100	150
2	BCA502	Software Engineering	3	1	-	30	20	50	100	150
3	BCA503	Simulation & Modeling	3	1	-	30	20	50	100	150
4	BCA504	Computer Architecture	3	1	-	30	20	50	100	150
5	BCA505	Network Security & Cryptology	3	1	-	30	20	50	100	150
(PRACTICALS/SESSIONALS)										
6	BCA506	AutoCAD Lab	-	1	3	50	-	50	50	100
7	BCA507	Computer Architecture & Networking Lab.	-	1	3	50	-	50	50	100
		Total Hours	15	7	6					

TA- Teacher's Assessment

CT- Class Test

ESE- End Semester Examination

Total Contact Hours-28

Total Marks-950

B.C.A. –Third Year**Semester – VI**

S.No.	Course No.	Subject	Period			Examination Scheme				
			L	T	P	Sessional Exam			ESE	TOTAL
						TA	CT	TOTAL		
(THEORY)										
1	BCA601	Management Information Systems	3	1	-	30	20	50	100	150
2	BCA602	E-Commerce	3	1	-	30	20	50	100	150
3	BCA603	E-Banking and Security Transactions	3	1	-	30	20	50	100	150
4	BCA604	Mobile Computing	3	1	-	30	20	50	100	150
(PRACTICALS/SESSIONALS)										
5	BCA605	Project	-	4	8	100	-	100	300	400
6		Discipline and Co-curricular activities	-	-	-	-	-	-	-	100
		Total Hours	12	8	8					

TA- Teacher's Assessment

CT- Class Test

ESE- End Semester Examination

Total Contact Hours-28

Total Marks-1100

BCA101: Semiconductor Physics, & Electronic**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-1**

Structure of matter (Molecule, Atom), Atomic Structure (Energy levels and electronic configuration), Intermolecular forces, Phases of matter, Types of solids, crystal structure of solids, atomic bonding (ionic, covalent and metallic bonding), Energy band theory of crystals, energy band structure of insulators, semiconductors and metals.

Mobility and conductivity, Electrons and holes in Intrinsic Semiconductor, Elementary properties of Germanium and Silicon, Donor and Acceptor Impurities, Extrinsic semi-conductors, Generation and recombination of charges, diffusion.

UNIT-II

Energy band structure of open circuit p-n junction, depletion region, p-n junction as a rectifier, current components of a p-n diode, Ideal Voltage Ampere characteristics, temperature dependence of the V/I characteristics, diode resistance, vector diodes, junction diode switching times, breakdown diodes, tunnel diode, semiconductor photodiode, photovoltaic effect, light emitting diodes.

UNIT-III

Bipolar Junction transistors, bipolar transistor action, basic principle of operation open circuited transistor, transistor biased in the active region, current components in a transistor, characteristic curves in common emitter, common base and common collector configurations, expressions for α , β , and Y Hybrid parameters of a transistor.

UNIT-IV

Half-wave and Full-wave rectifiers, ripple factor, efficiency, voltage regulation, inductor filters, capacitor filters, L and pie section filters, regulated power supplies, information about SMPS supply.

UNIT-V

Transistor as an amplifier, Characteristics of an amplifier. Feed-back concepts and Oscillators. Elementary information about Field Effect transistors, thyristors, opto-electronic devices and display devices.

References:-

1. Albert Paul Malvino, Electronic Principles, McGraw Hill.
2. G.K. Mithal, Electronics Devices and Circuits, Khanna Publishers, Delhi, 2000.
3. Sadra and Smith. Microelectronic Circuits, Oxford university Press, 1999.
4. R.P. Punagin, Basic Electronics, Tata McGraw Hill.
5. Jacob Millman and Christos C. Halkias: Electronic Devices and Circuits, Tata Mc-Graw Hill Publishing Company Ltd., 2000.
6. Donald A. Neamen, Semiconductor Physics and Devices, McGraw Hill, 1997.

BCA102: Business Accounting

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT-I

Generally Accepted Accounting Principles: Concepts and conventions, Accounting equation. Books of Original Record: Journal and Subsidiary books, Ledger, Trial Balance

UNIT-II

Bills of Exchange, Depreciation, Provisions and Reserves, Rectification of Errors, Preparation of Final Accounts with Adjustments.

UNIT-III

Sectional and Self balancing Ledgers, Preparation of Accounts from Incomplete Records, Insurance claims for loss of stock and loss of profit

UNIT-IV

Departmental and Branch Accounts

UNIT-V

Company Accounts: Issue of Shares and Debentures, Redemption of Shares and Debentures, Preparation of Final Accounts and Companies. Valuation of Goodwill and Shares.

References:-

1. Shukla & Grewal: Advanced Accounts
2. S.N. Maheshwari: Advanced Accountancy, Vol. I & II.
3. Sharma & Bhardwaj: Book-keeping & Accountancy.
4. Sharma, Shah & Agrawal: Financial Accounting.

BCA 103: Discrete Mathematics**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-I**

Number Systems: natural numbers, integers, rational numbers, real numbers, complex numbers, arithmetic modulo a positive integer (binary, octal, decimal and hexadecimal number systems), radix representation of integers, representing negative and rational numbers, floating point notation.

UNIT-II

Binary Arithmetic, 2's complement arithmetic, conversion of numbers from one of binary/octal/decimal/hexadecimal number system to other number systems, Codes (Natural BCD, Excess-3, Gray, Octal, Hexadecimal, Alphanumeric- EBCDIC and ASCII), Excess-3, Gray, Octal, Hexadecimal, Alphanumeric- EBCDIC AND ASCII, Error Codes.

UNIT-III

Logic and Proofs : Proposition, Conjunction, Disjunction, Negation, Compound proposition, Conditional propositions (Hypothesis, conclusion, necessary and sufficient condition) and Logical equivalence, De Morgan's law, quantifiers, universally quantified statement, generalized De Morgan's Laws for Logic, component of Mathematical system (axiom, definitions, undefined terms, theorem, lemma and corollary), proofs (direct proofs, indirect proofs, proof by contra-positive), valid argument, deductive reasoning, modus ponens (rules of inference), universal instantiation, universal generalization, existential instantiation, universal generalization resolution, principle of mathematical induction, structural induction.

UNIT-IV

Sets, Venn diagrams, ordered pairs, sequences and strings, relation (reflexive, symmetric, anti-symmetric, transitive, partial order), inverse relation and composition of relations, relational database, functions (injective, subjective, bijective), composition of functions, restriction and functions overriding, function spaces, lambda notation for functions, lambda calculus, equivalence relations interpretation using digraphs, cardinals, countable and uncountable sets, infinite cardinal numbers, Russell's paradox, operations on cardinals, laws of cardinal arithmetic.

UNIT-V

Graph theory undirected graph, digraph, weighted graph, similarity graphs, paths and cycles, Hamiltonian cycles, shortest path algorithm. isomorphism of graphs, planar graphs, Trees, characterization of trees, spanning trees, breadth first search and depth first search method, minimal spanning trees, binary trees, traversals, decision trees and the minimum time for sorting, isomorphism of trees.

References:-

1. C.I.Liu ; elements of Discrete Mathematics Tata McGraw Hill publishing Company Ltd., 2000
2. Richard johnsonbaugh discrete mathematics Pearson Asia 2001 .
3. John Truss : Discrete Mathematics for Computer Scientists, Pearson Education, Asia, 2001.
4. Robert J.McEliece : Introduction to Discrete Mathematics, Tata Mc. Graw Hill, India.
5. Lipschutz : Discrete Mathematics, Tata Mc. Graw Hill India.
6. Kenneth H. Rosen, Discrete mathematics and Applications, Tata Mc. Graw Hill, India.

BCA104: Programming in C**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-1**

Origin & Introduction to C: About C, Evolution of C, Programming languages, Structure of a C program, Compiling a C program, Compiler & interpreters, Pseudo codes, Simple C program, Character set in C, Keywords in C, Hierarchy of operators, Basic data types, Qualifiers used with basic data types, Variables in C, Type declaration, Output function, Input function and format specifiers, arithmetic operators, Unary operators, Relational and logical operators, Constraints in C.

UNIT-II

Decision Making, Branching & looping: Why control statements, The if statement, if else statement, for statement, while loop, do while statements, break statements, continue statements, switch statement, GOTO statement, ternary operators.

UNIT-III

Arrays & String Handling : Introduction to arrays, advantages of arrays, types of arrays, array declaration, array initialization, accessing data from array, array inside the memory, multidimensional arrays, Character arrays, Array overflow, String Variables, Reading & writing strings, string handling functions.

UNIT-IV

User Defined Functions : Introduction to functions, advantages of functions, declaring a function, calling a function, variables, passing arguments to a function, nested functions, passing array to functions, recursion in functions, Call by value and Call by reference, Pointers : Introduction to pointers, pointer variations, dynamic memory allocation, pointers and arrays, pointers to pointers, functions returning pointers, 2 dimensional arrays and pointers, array of pointers.

UNIT-V

Structures & Unions: Structure definition, Structure initialization, arrays of structures, arrays within structures, structures & functions, Unions.

File Management in C: Defining & opening a file, closing a file, I/O operations on file, error handling during I/O operations, Random Access Files.

References:-

1. Robert W. Sebesta: Concepts of Programming Language, Addison Wesley, Pearson Education Asia, 1999.
2. Ramon A. Mata-Toledo and Pauline K. Cushman: Introduction to Computer Science, Mc Graw Hill International Edition.
3. D. Appleby and JJ Vande Kopple: Programming Languages, Tata Mc Graw Hill, India.
4. Deitel and Deitel: How to Program C, Addison Wesley, Pearson Education Asia, 1999.
5. K.R.Venugopal, Rajkumar, T. Ravishankar: Mastering C++, Tata Mc Graw Hill, India.
6. Yashwant Kanetkar: Working with C, BPB Publications.
7. Yashwant Kenetkar: Let us C, BPB Publications
8. Bryon Gottfried, Programming with C, McGraw Hill International.

BCA105: Computer Fundamentals**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-I**

Classification of Computers: Notebook Computers; Personal Computers (PCs); Workstations; Mainframe Systems; Supercomputers; Clients and Servers.

Number Systems: Non-Positional Number Systems; Positional Number Systems (Binary Number System, Octal Number System, Hexadecimal Number System); Converting One number System to Another, Fractional Numbers.

UNIT-II

Processor and Memory: The Central Processing Unit (CPU) (The Control Unit, The Arithmetic Logic Unit (ALU), Instruction Set, Registers, Processor Speed, Types of Processors); Mother Board, The Main Memory (Storage Evaluation Criteria, Main Memory Organization, Main Memory Capacity, RAM, ROM, PROM and EPROM, Cache Memory).

UNIT-III

Secondary Storage Devices: Sequential and Direct-Access Devices; Magnetic Tape Optical Disk, Mass Storage Devices, Storage Hierarchy.

Input-Output Devices : Input Devices (Keyboard Devices, Point-and-Draw Devices, Data Scanning Devices, Digitizer, Electronic Card Reader, Voice Recognition Devices, Vision-Input System); Output Devices (Monitors, Printers, Plotters, Screen Image Projector, Voice Response Systems).

UNIT-IV

Computer Languages : Analogy with Natural Languages; Machine Language; Assembly Language; High-Level Language (Compiler, Linker, Interpreter, Advantages and Limitations of High-Level Languages); Object-Oriented Programming Languages; Some High-Level Languages (FORTRAN, COBOL, BASIC, Pascal); Some More High-Level Languages (C and C++, Java, RPG, LISP, SNOBOL); Characteristics of a Good Programming Language; Selecting a Language for Coding an Application; Subprogram.

UNIT-V

Application Software Packages: Word-Processing Package; Spreadsheet Package Graphics Package, Internet: Definition, Brief History; LAN, MAN, WAN, Network Topologies, Internet Basic Services (Electronic Mail, File Transfer Protocol, Telnet, Usenet News, The World Wide Web); WWW Browsers; Uses of the Internet.

References:-

1. Alex Leon & Mathews Leon, "Fundamentals of Information Technology", Leon Techworld, 1999.
2. Vikas Gupta, "Comdex Computer Kit", Wiley Dreamtech, Delhi, 2004
3. P. K. Sinha & Priti Sinha, "Computer Fundamentals", BPB Publications, 1992.
4. V. Raja Raman, "Introduction to Computers", PHI, 1998.
5. Alex Leon & Mathews Leon, "Introduction to Computers", Vikas Publishing House, 1999.
6. Norton Peter, "Introduction to computers", 4th Ed., TMH, 2001.
- 7.M. Morris Mano : Computer System Architecture, Prentice Hall of India.

BCA106: Microcomputer Lab**(L: 0: T: 1: P: 3)****Max.Marks:100****Word Processing Software-MS Word 2000:**

Creating and Saving documents, Entering, Editing, Moving, Copying and Formatting Text, Page formatting, Finding and replacing text, Spell checking and Grammar checking, enhancing documents, Indexing, Columns, Tables and feature there in, Inserting (Objects, picture, files etc.), Using Graphics, templates and wizard, using mail merge, using Word Art, customizing MS Word. Designing pages with MS Publisher, Inserting and Manipulating Objects

Spreadsheet Software-MS Excel 2000:

Spreadsheet terminology, organization of the worksheet area, entering information, editing cells using commands and functions, moving copying, inserting and deleting rows and columns, formatting worksheet, printing worksheet, creating charts, modifying and enhancing charts, using date, time and addressing modes, naming range and using statistical, mathematical and financial functions, database in a worksheet, creating, sorting, querying and maintaining the database, multiple worksheets and Macros, working with objects.

Presentation Software-MS Power Point 2000:

Anatomy of a power Point Presentation, Creating and Viewing a presentation, Managing Slide Shows, Navigating through a presentation, Using hyperlinks, advanced navigation with action setting and action buttons, organizing formats with Master Slides, applying and modifying designs, adding graphics, multimedia and special effects, creating presentation for the web.

Data Base management Software- MS Access 2000:

Planning a database (tables, queries, forms, reports), Creating and editing database, customizing tables, linking tables, designing and using forms, modifying database structure, maintaining database, Sorting and Indexing database, Querying a database and generating Reports, modifying a Report, exporting a Report to another format.

BCA107: C-Programming Lab**(L: 0: T: 1: P: 3)****Max.Marks:100**

List of Experiments-

- Simple input output program integer, real character and string. (Formatted & Unformatted)
- Conditional statement programs (if, if-else-if, switch-case)
- Looping Program. (for, while, do-while)
- Program based on array (one, two and three dimensions)
- Program using Structure and Union.
- Program using Function (with and without recursion)
- Simple programs using pointers.
- File handling.

BCA108: Language Lab**(L: 0: T: 1: P: 3)****Max.Marks:100**

The content and coverage of the Language Lab. lessons will cover the following:

1. Phonetic symbols and transcription
2. Listening Skills and comprehension
3. Conversation practice, perfecting English sounds, pronunciation, stress and intonation etc.
4. Vocabulary building, synonyms and antonyms, one word for many, words commonly misspelt and mispronounced
5. Practice of Seminar presentation, Group discussion and Interview skills.

BCA201: Statistical Methods**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-I**

Frequency distributions, Relative frequency distributions, cumulative frequency distributions and Ogives, Frequency curves, mean, median, mode and other measures of central tendency, Dispersion, standard deviation variance.

UNIT-II

Combinations and permutations, concepts and axioms of probability, Addition and multiplication theorems of probability, theorem on conditional probability, distributions, probability distribution of functions of random variables, Time series and forecasting, moving averages, smoothing of curves, forecasting models and methods .

UNIT-III

Regressions, Correlation theory, correlation and regression, measures of correlation coefficients of correlation, correlation of time series and attributes, multiple and partial correlation, relationship between multiple and partial correlation coefficients.

UNIT-IV

The Binomial, Normal and Poisson distributions, relationship between Binomial and Normal distributions relationship between Binomial and Poisson distributions, Sampling theory, random samples and random numbers, Computations of mean, variance and moments of grouped data, Estimation theory, unbiased, efficient point and interval estimates, reliability, maximum likelihood estimates.

UNIT-V

Statistical Decision theory, Statistical decisions and hypothesis decision rules. type I & II errors, Two tailed and one tailed of freedom the F distribution the chi square test, analysis of variance , application of tests of significance , t-test , f-test and z-test.

Reference books:

1. Gupta S.P. – Statistical Methods, Sultan Chand and Sons, New Delhi
2. Gupta, S P and Gupta M P. Business Statistics. Sultan Chand , New Delhi
3. Gupta C B- An Introduction to Statistical Methods (Vikas)
4. Chandan.J.S., Statistics for Business and Economics, Vikas Publishing House Pvt. Ltd.
5. Sharma J K - Business Statistics (Pearson Education)
6. Richard I. Levin and David S.Rubin, 'Statistics for Management', Prentice Hall of India
7. Levin & Rubin: Statistics for Management, Prentice Hall India
8. Hooda,R.P., Statistics for Business and Economics, Macmillan India Ltd.

BCA202: Electrical Circuits**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-I**

Magnetic field due to a bar magnet, Biot Savrt's law, magnetic field due to a current carrying coil, Force between two parallel currents, Magnetic field inside solenoid and toroid, magnetic flux, Faraday's law of electromagnetic induction, magnetic properties of matter, (diamagnetic, paramagnetic, ferromagnetic and ferromagnetic materials), inductance, energy stored in an inductor, LR circuits.

UNIT-II

Electric charge, conductors and insulators, Coulomb's Law, quantization and conservation of electric charge, the electric field, electric lines of force and Gauss' Law of electrostatics, electric potential energy, electric potential, energy and electrical power, Capacitors, capacitance, capacitors in series and parallel, capacitors with dielectric, Electric current, resistance, resistivity and conductivity, Ohm's law, electromotive force, series and parallel combination of resistances, current in a single loop, electrical power consumption multiloop circuits, Charging and discharging of a capacitor.

UNIT-III

Classification of circuit elements, V-I characteristics and current sources – ideal and practical, source conversion, Kirchoff's voltage and current laws, Loop analysis, Star-delta and Delta-star transformations, Superposition theorem & Thevenin's theorem

UNIT-IV

Generation of alternating emf, average and rms value of AC, analysis of AC, Circuits (series LR, series RC, series LCR, parallel LCR circuit. Resonance, Three phase AC circuits,

UNIT-V

Measuring Instruments, Multimeters, House wiring materials and accessories, types of wiring, basic principle of Earthing.

References:-

1. Bernard Grob: Basic Electronics, Tata Mc Graw Hill.
2. Fowler: Electricity, Tata Mc Graw Hill.
3. Shivakumar, Engineering Physics, Tata Mc Graw Hill.
4. Iyer, Circuit Theory, Tata Mc Graw Hill.

BCA203: Operating Systems**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-I**

Necessity of and Operating system. Operating system terminology, Evolution of Operating Systems (multiprogramming systems, batch systems, timesharing system, Process control and Real-time system). Factors in OS Design (performance protection and security, correctness, maintainability application integration, portability, and interoperability).

UNIT-II

Device Management: General device characteristics, I/O Programming concepts, device controllers, device drivers Interrupts Driven I/O Memory Mapped I/O, Direct Memory Access Buffering, Device Management Scenarios (serial communications, sequentially accessed storage devices, randomly accessed devices). Process Management: Process definition, Process control, initializing Operating System, Process Address Spaces Process Abstraction, resource Abstraction and Process Hierarchy.

UNIT-III

Scheduling Mechanisms, Partitioning a process into small processes Non-preemptive strategies (first come-first served, shortest job next, priority scheduling deadline scheduling), Preemptive strategies (Round Robin, two queues, multiple level queues).Basic Synchronization principles: Interactive processes coordinating processes, Semaphores, Shared memory multiprocessors, AND Synchronization, Interposes communication, interprocess messages, mailboxes. Deadlocks, Resource Status Modeling Handling deadlocks, deadlock detection and resolution deadlock avoidance.

UNIT-IV

Memory Management: Requirements on the primary memory, mapping the address space to primary memory, dynamic memory for data structures, Memory allocation (Fixed partition Memory allocation strategy), Dynamic Address Relocation, Memory Manger Strategies (Swapping, Virtual Memory, Shared Memory Multiprocessors). Virtual Memory: Address translation paging, Static and dynamic paging algorithms.

UNIT-V

Information Management: Files (Low level files, structured files, database management systems, multimedia storage). Low level files implementation. Storage Abstraction (Structure sequential files, indexed sequential files, database Management Systems, Multimedia documents). Memory mapped files, Directories, directory implementation, file sharing, sharing information across network remote Viruses and Worms, Security Design principles, Authentications, Protection mechanisms, encryption, Protection of User-Files.

References:-

1. Gary Nutt: Operating Systems-A Modern Perspective (Second Edition), Pearson Education, 2000.
2. D.M. Dhamdhare: Systems Programming and Operating Systems (Second Edition), Tata Mc-Graw Hill Publishing Company Limited, 2000.
3. Stuart e. Madnick, John J. Donovan: Operating Systems, Tata Mc-Graw Hill Publishing Company Limited, 2000.
4. Achyut S. Godbole: Operating Systems, Tata Mc-Graw Hill Publishing Company Limited, 2000.
5. Harvey M. Deitel, Operating Systems, Pearson Education, 2001.
6. Tanenbaum A.S., Modern Operating Systems, PHI Pub.
7. Ritchie: Operating Systems, BPB Publications.

BCA204: Algorithms and Data structures

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT-I

Algorithms, pseudo code, efficiency of algorithms, analyzing algorithms and problems, complexity measures, basic time analysis of an algorithm, space complexity, Data abstraction and basic data structures, data types, abstract data types and C++ class, String processing (storing strings, string operations, word processing, pattern matching algorithms).

UNIT-II

Arrays and their representation, representation of linear arrays memory, multidimensional arrays, pointers, pointer arrays, Linked lists, insertion, deletion and searching of linked list, two way lists. Stacks, array representation of stacks, arithmetic expressions, Polish notations, Queues

UNIT-III

Tables and searching, Linear search, binary search, Hash tables, Trees, Binary and N-ary trees, representation of binary trees in memory, traversing binary trees, traversal algorithms using stacks, header nodes, threads, binary search trees, heap, heap sort, Huffman's algorithm.

UNIT-IV

Graphs and their representations, sequential representation, linked representation of graphs, operations on graphs, traversing a graph.

UNIT-V

Sorting and Searching: Sequential, Binary and Hashed searching, Internal and external sorting techniques, Bubble sort, Insertion sort, Selection sort, Merge sort, Radix sort and quick sort comparisons.

References:-

1. S. Lioschutz: Data Structures, Mc Graw Hill International Edition.
2. A.V. Aho., J.E. Hopcroft, and J.D. Ullman, Data Structures and Algorithms, Pearson Education Asia.
3. A. Michael Berman: Data Structures via C++, Oxford University Press.
4. Sara Baase and Allen Van Gelder: Computer Algorithms, Pearson Education Asia.
5. Jean-Paul Tremblay and Paul G. Sorenson, An Introduction to Data structures with applications, TMH Publishing Co.Ltd.

BCA205: OOPs & C++**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT – I**

Introduction: Introducing Object-Oriented Approach, Relating to other paradigms(functional, data decomposition).Basic terms and ideas: Abstraction, Encapsulation, Inheritance, Polymorphism, Review of C, Difference between C and C++ - cin, cout, new, delete operators.

UNIT – II

Classes and Objects: Encapsulation, information hiding, abstract data types, Object & classes, attributes, methods, C++ class declaration, State identity and behaviour of an object, Constructors and destructors, instantiation of objects, Default parameter value, object types, C++ garbage collection, dynamic memory allocation, Metaclass/abstract classes.

UNIT – III

Inheritance and Polymorphism: Inheritance, Class hierarchy, derivation – public, private & protected, Aggregation, composition vs. classification hierarchies, Polymorphism, Categorization of polymorphism techniques, Method polymorphism, Polymorphism by parameter, Operator overloading, Parametric polymorphism

UNIT – IV

Generic function – template function, function name overloading, overriding inheritance methods, Run time polymorphism, Multiple Inheritance.

UNIT-V

Files and Exception Handling: Persistent objects, Streams and files, Namespaces, Exception handling, Generic Classes

References:-

1. A.R.Venugopal, Rajkumar, T. Ravishanker “Mastering C++”, TMH, 1997.
2. S. B. Lippman & J. Lajoie, “C++ Primer”, 3rd Edition, Addison Wesley, 2000.
3. R. Lafore, “Object Oriented Programming using C++”, Galgotia Publications, 2004.
4. D. Parsons, “Object Oriented Programming with C++”, BPB Publication.
5. Steven C. Lawlor, “The Art of Programming Computer Science with C++”, Vikas Publication.
6. Schildt Herbert, “C++: The Complete Reference”, 4th Ed., Tata McGraw Hill, 1999.
7. Tony Gaddis, Watters, Muganda, “Object-Oriented Programming in C++”, 3rd Ed., Wiley Dreamtech, 2004.

BCA206: Electrical & Electronics Lab**(L: 0: T: 1: P: 3)****Max.Marks:100**

1. To study and familiarize with use of various measuring instruments like multimeter, function generator, oscilloscope and power supply.
2. To study series and parallel combination of resistances using DC source.
3. To study the variation of charge and current in a RC circuit for different time constants using a DC source.
4. To Study the rise and decay of current in a LR circuit using a DC source.
5. To study resonance in a Series LCR circuit with an AC source.
6. To study resonance in a Parallel LCR circuit with an AC source.
7. To study electromagnetic induction and to verify Farady's law.
8. To study conversion of a galvanometer into an ammeter.
9. To study conversion of a galvanometer into a voltmeter.
10. To identify and test various electronic components.
11. To study the characteristics of a semiconductor junction diode.
12. Determination of the band gap using a junction diode.
13. To study characteristics of a PNP/NPN transistor in common emitter/base configuration.
14. To study characteristics of Zener diode.
15. To study half wave rectification using single diode and L section filter.
16. To study full wave rectification using two diodes and pie section filter.
17. To study a single stage transistor audio amplifier.
18. To study behavior of a SMPS power supply.

BCA207: Data structures Lab**(L: 0: T: 1: P: 3)****Max.Marks:100**

1. Arrays
2. pointers, pointer arrays,
3. Linked lists, two way lists.
4. Stacks,
5. Queues
6. Tables and searching. Linear search, binary search, Hash tables.
7. Trees, header nodes, threads, heap, heap sort,
8. Sorting and Searching.

BCA208: OOPs Lab**(L: 0: T: 1: P: 3)****Max.Marks:100**

List of Experiments-

1. Simple input output program integer, real character and string. (Formatted & Unformatted)
2. Conditional statement programs (if, if-else-if, switch-case)
3. Looping Program. (for, while, do-while)
4. Program based on array (one, two and three dimensions)
5. Program using Structure and Union.
6. Program using Function (with and without recursion)
7. Inheritance, polymorphism, overloading etc.
8. File handling.

BCA301: Financial and Marketing Management

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT-I

Nature, scope and objective of Financial Management, Basic Financial Concepts Statement of changes in financial Position, Working capital, cash and total resource basis, Financial Statement Analysis- Ratio analysis,

UNIT-II

Capital Budgeting: Principles and Techniques, Analysis of risk and uncertainty, Concept and measurement of cost of capital, merger/amalgamation and acquisitions/takeovers, lease financing, Operating financial and combined leverage

UNIT-III

Capital structure; cost of capital and valuation, designing capital structure, Theory of working capital management, planning of working capital, working capital financing, measurement of cash and marketable securities, inventory management.

UNIT-IV

Role of marketing in modern organizations, the market environment, market planning, marketing research and information system, understanding the buyer, organization buying behavior, segmenting and targeting the market, market measurement and forecasting

UNIT-V

product decisions, brand equity, pricing decisions, promotion decisions, advertising management, sales promotion, personal selling, managing the distribution function, marketing strategy, marketing organization, marketing performance and control.

References:-

1. M.Y. Khan and P.K. Jain, Financial Management, Tata Mc-Graw Hill.
2. Prasanna Chandra, Financial Science, Tata McGraw Hill.
3. Ranjan Saxena, Marketing Management, Tata McGraw Hill.
4. William J. Stanton, Michael J. Etzel, Bruce J. Walker, Fundamentals of Marketing, McGraw Hill International.
5. Fundamentals of Marketing, McGraw Hill International.

BCA302: Numerical Analysis and Optimization

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT-I

Computer arithmetic's and errors. Algorithms and programming for numerical solutions.

UNIT-II

The impact of parallel computer: introduction to parallel architectures. Basic algorithms

UNIT-III

Iterative solutions of nonlinear equations: bisection method, the Secant method, the method of successive approximation, Solution of simultaneous algebraic equations.

UNIT-IV

Gauss elimination method Polynomial interpolation and other interpolation functions, spline interpolation system of linear equation pivoting matrix factorization methods

UNIT-V

Numerical calculus: numerical differentiating, interpolatory quadrature, Euler's method. Runge-Kutta method, Multistep method. Boundary value problems: shooting method.

References:-

1. E. Balagurusamy, Numerical Methods, Tata Mc Graw Hill.
2. V. Rajaraman, Computer Oriented Numerical Methods, Prentice Hall of India Pvt. Ltd.
3. M.K. Jain, S.R.K. Iyenger and R.K. Jain, Numerical Methods for Scientific and Engineering Computation, Wiley Eastern Ltd.
4. S.S. Sastry, Introductory Methods of Numerical analysis. Prentice Hall of India Pvt. Ltd.
5. Curtis F. Genrid and Patrick O. Wheatley, Applied Numerical Analysis, Addison Weseley.
6. J.H. Mathews, "Numerical Methods for Computer Science, Engineering and Mathematics", Prentice Hall of India Pvt. Ltd.

BCA 303: Database Management System**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT – I**

Introduction: Characteristics of database approach, Database architectures [Three levels of the architecture: external, conceptual and internal level], Database models; hierarchical ,Relational ,Network and object oriented database , centralized and distributed, data models, DBMS architecture and Data independence.

UNIT-II

E-R Modeling: Entity types, entity set, attribute and key, relationships, relation types, roles and structural constraints, weak entities, enhanced E-R and object modeling, Sub Classes:, Super classes, inheritance, specialization and generalization.

UNIT – III

File Organization: Indexed sequential access files, implementation using B++ trees, hashing, hashing functions, collision resolution, extendible hashing, dynamic hashing approach implementation and performance.

UNIT – IV

Relational Data Model: Relational model concepts, relational constraints, relational algebra. SQL: SQL queries, programming using SQL, EER and ER to relational Mapping: Data base design using EER to relational language.

UNIT – V

Data Normalization: Functional dependencies, Normal form up to 3rd normal form, Concurrency Control: Transaction processing, locking techniques and associated, database recovery, security and authorization. Recovery Techniques, Database Security

References:-

1. Abraham Silberschatz, Henry Korth, S. Sudarshan, "Database Systems Concepts", 4th Edition, McGraw Hill, 1997.
2. Jim Melton, Alan Simon, "Understanding the new SQL: A complete Guide", Morgan Kaufmann Publishers, 1993.
3. A. K. Majumdar, P. Battacharya, "Data Base Management Systems", TMH, 1996.
4. Bipin Desai, "An Introduction to database Systems", Galgotia Publications, 1991.
5. I R. Elmarsi and SB Navathe, "Fundamentals of Database Systems", Addison Wesley, 4th Ed., 2004

BCA 304: Fundamentals of JAVA**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-I**

Java Programming: Data types, control structured, arrays, strings, and vector, classes (inheritance, packages, exception handling), Constants, Variables, Data types, arithmetic Operators, Relational Operators, Logical Operators, Assignment Operators, Increment and Decrement operator, Conditional Operator, Bit-wise Operator, arithmetic expression.

UNIT – II

Type conversion in expressions, Mathematical Functions, decision control structure, loop control structure, Classes, Objects and Methods, Boolean Methods, void Methods, Overloading, Nesting of Methods, Constructors, Class Invariants, Composition, Recursive. Classes, extending a class,

UNIT – III

Overriding Method, Inheritance versus compositions, Class hierarchies, Arrays and Vector, String Arrays, Wrapper Classes, Defining, extending and implementing interfaces, accessing interface variables, Graphics, Managing Layouts

UNIT - IV

Java applets, AWT controls (Button, Labels, Combo box, list and other Listeners, menu bar), layout manager, string handling (only main functions), Thread and exceptions.

UNIT-V

Networking (datagram socket and TCP/IP based server socket), event handling, Drivers in java, JDBC, ODBC connectivity Event driven programming.

References:-

1. C. Thomas Wu, an Introduction to OOP with Java, Mc Graw Hill.
2. Timothy Wood, An Introduction to Object Oriented Programming, Addison Wesley.
3. Deitel and Deitel, Java, How to Program, Pearson Education Asia.
4. Cay S. Horstmann and Gary Cornell, Core Java, Pearson Education Asia.
5. E. Balaguruswamy, Programming with Java, Tata McGraw Hill.
6. Zukowski: Mastering Java 2, BPB Publications.
7. Herbert Sclildt, Java 2, Tata Mc Graw Hill.

BCA305: Visual Basic Programming**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT -1**

Introduction to Visual Basic :The Visual Basic Program Development Process; The Visual Basic Environment; Opening a Visual Basic Project; Saving a Visual Basic Project; Running a Visual Basic Project; Numeric Constants; String Constants; Variables; Data Types and Data Declarations; Operators and Expressions; Hierarchy of Operations; String Expressions; Library functions , Branching and Looping Statements, Relational Operators and Logical Expressions; Logical Operators; Branching with the if-Then Block; Branching with if-Then -Else Blocks; Selection: Select-case; Looping with for-Next; Looping With Do-Loop; Looping with While-Wend

UNIT-II

Visual Basic Control Fundamentals : Visual Basic Control Tools; Control tool Categories; Working with controls; Naming Forms and Controls; Assigning Property Values to Forms and Controls; Executing Commands(Event Procedures and Command Buttons); Display Output Data (Labels and Text Boxes);Entering Input data(Text Boxes); selecting Multiple Features(Check Boxes); selecting Exclusive Alternatives(Option Button and Frames);Assigning Properties Collectively(The With Block); Generating Error Messages(The MsgBox Function);Creating Times Events; Scrollbars;

UNIT-III

Menus and Dialog Boxes :Building Drop-down Menus; accessing a Menu from the Keyboard; Menu Enhancements; Submenus; Pop-up Menus; Dialog Boxes; Input Box; Executing and Debugging a New Project : Syntax Errors; Logical Errors; Setting break Points; Defining Watch Values; Stepping Through a Program; User- Induced Errors; Error Handlers; Procedures : Modules and Procedures; Sub Procedure; Event Procedures; Function Procedures; Scope; Optional Arguments

UNIT-IV

Using Class Modules: Object Oriented Principles; Creating Class Modules; Using Class Modules Adding Properties and Events and Methods, Using COM Components : Introduction to ActiveX Components and Component Object Model; Benefits of COM; Clients and Servers; Types of ActiveX Components Available in Visual Basic;. ActiveX Controls, .ActiveX EXE and ActiveX DLL

UNIT-V

Data Access using ADO : Data Access Technology with VB ; The ActiveX Data Object Model; Advantages of ADO and OLEDB; Connecting to a Data Source; Retrieving from a Data Source; Sorting and Searching Data; Updating Data; Creating Dynamic Record Sets; Using Cursors; Cursor Types; Locking; Accessing ADO Data Control. Data Environment and Data Report: Introduction; Data Environment Designers; Working with Data Reports; Cut different types of Data Reports.

References:-

1. Julin Case Bradley and Anita C. Millsbaugh: Programming in Visual Basic 6.0, Tata Mc Graw Hill.
2. Dan Rahmel: Visual Basic 6, Tata Mc Graw Hill.
3. Wayne S. Freeze : Visual Basic 6, BPB Publications.

BCA306: Communication Skills**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****Unit I:**

Introduction to Communication- Definition, Importance and nature of communication – Communication Models – Process of Communication; Barriers and Gateways in communication; Developing Effective Communication skills. Different types of communication like letters, memos, reports, fax, email, presentations, telephone, and multimedia, choosing the means of communication, stages in communication cycle, communication systems.

Unit II:

Written Communication - I -*Writing Techniques*: Rules of good writing, adaptation and selection of words, masculine words, writing with style- choosing words with right strength and vigour, using a thesaurus, writing effective sentences, developing logical paragraphs, overall tone, drafting, editing and finalizing the business letters – Commercial letters; Preparation of Office Order, Memo, Indents; Recent Developments in Communication Technology; Do's and don'ts of Business writing; Legal aspects of Business communication

Unit III:

Written Communication – II-Recruitment and employment correspondence: Application letter, curriculum vitae, interview, references, offer of employment, job description, letter of acceptance, letter of resignation. Internal communications: memoranda, reports: types of reports, formal reports and informal reports, meetings, documentation.

External communications: Public notices, invitations to tender bid, auction, notices, etc; Report writing: planning, technique of writing a report, characteristics of business reports, common types of reports, purposes of reports; Writing Business reports

Unit IV:

Persuasive messages-Planning the persuasive message, common types of persuasive requests, principles of persuasive communication. Effective communication and impact of information technology, Oral communication: nature and significance; Written and oral communication presentation of Business Reports; Public speaking and negotiations.

Unit V:

Reformulating and summarising-What is a summary? Using synonyms & antonyms, reducing phrases, guidelines for writing summaries, business summaries. *Comprehension*: using a dictionary, grammatical precision, phonetics, contextual clues, guidelines for comprehension

References:-

1. Sharma R.C.and Mohan K “Business report Writing and Correspondence” Tata McGraw-Hill, New Delhi
2. Lesikar R V and Pettit Jr J D- *Business Communication: Theory and Application* (Tata McGraw-Hill, 2002)
3. Tayler Shinley - *Communication for Business* (Pearson Education, 2002)
4. Bovee C L et al- *Business Communication Today* (Pearson Education, 2002), New Delhi
5. Hargie O et al- *Communication Skills for Effective Management* (Palgrave, 2004)
6. T N Chhabra, Bhanu Ranjan – *Business Communication* (Sun India, 2004)
7. P.D. Chaturvedi – *Business Communication* (Pearson Education)
8. Meenakshi Raman-*Technical Communication-* (Oxford University Press)
9. Murphy H.A. and Peak C.E., “Effective Business Communication” 2nd Ed. Tata McGraw-Hill, New Delhi
10. Pearce C.g. “Business Communications; Principles and Applications” 2nd Ed. John Wiley, New York

BCA307: DBMS Lab**(L: 0: T: 0: P: 3)****Max.Marks:100**

1. SQL data types and Literals
2. SQL Operators
3. types of SQL commands
4. Aggregate Functions
5. Select statement
6. Sub queries, Insert, Update and Delete operations,
7. Joins
8. Unions
9. Tables, Indexes
10. Views

BCA 308: JAVA Lab**(L: 0: T: 1: P: 3)****Max.Marks:100**

1. Learn about getting and installing the Java Development Kit.
2. Learn about Java programming language structure and syntax.
3. Learn about control statements (The If statement, Logical Operators, The Conditional Operator, the Switch Statement, Variable Scope, Loops).
4. Learn about Java arrays, Java Strings, Operations on Strings and String Buffer Objects.
5. Learn about Class, Objects, Methods and Problem solving using classes, objects and relationships.
6. Learn about console and file I/O.
7. Learn about Java Exceptions, Inheritance and Polymorphism.
8. Create sophisticated Java applications that leverage object oriented features of the java language, such as inheritance and polymorphism.
9. Use the file I/O class libraries to read and write to and from data and text files.
10. Create and use Java GUI components such as panels, buttons, labels, text fields and text areas.
11. Create stand-alone Java applications, and use the frame and menu classes to add graphics to Java applications.
12. Create basic Java applets

BCA309: Visual Basic Lab**(L: 0: T: 1: P: 3)****Max.Marks:100**

1. Event driven programming : objects, properties, methods, events,
2. Introduction to Visual Basic : development environmental forms controls, menus dialogues
3. Programming in Visual Basic: data types, data structures, control structures subprograms, intrinsic functions, error handling, file handling.
4. Multiple Form Programming - Information Kiosks
5. Windows API: functions, API viewer, 'declare' statements, making API calls.

BCA 401: Digital Electronics and Circuits**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-I**

Positive and negative logic, Logic functions-NOT,AND,OR NOR, EX-NOR, Truth tables, Boolean Algebra, de Morgan's theorems; Standard forms for logical expressions, Sum of Products, Product of Sums specification of logical functions in terms of Minterms and Maxterms, Karnaugh Maps, simplification of logical functions, introduction of "don't care" states, Quine-McLuskey7 algorithm, Synthesis using only NAND or only NOR gates.

UNIT-II

Digital Logic Families : Characteristics of Digital ICs, Introduction to Bipolar Families (RTL, DCTL, DTL, ECL), Introduction to Unipolar Logic families (PMOS, NMOS, CMOS), TTL Circuits, 7400, 74H00, 74L00, 74S00, 74LS00, 74AS00 series, TTL parameters, Sourcing and sinking, Loading rules, Three state TTL devices, External Drive for TTL Loads, Positive and Negative Logic, ECL OR/NOR Gates, ECL characteristics,

UNIT-III

Combinational Circuits, Multiplexer-IC 74150 and IC 44151, Demultiplexer-IC 74154, Decoder- IC 74139, BCD to Seven segment De-coder IC 7446/7447 IC 7448/7449 Decimal to BCD Priority Encoder- IC 7447, parity Checker-IC 741 80, Magnitude Comparator IC 7485.

UNIT-IV

Sequential Circuits : RS Flip Flop, Clocked RS Flip Flop, D Flip Flop, Edge Triggered D Flip Flop, master-Slave Technology and its advantage, Shift Register as Flip Flop system,

UNIT-V

IC 7496, UP/DOWN counters, 74 series asynchronous counters, 74 series synchronous counter.

References:-

1. Albert Paul Malvino and Donald P. Leach, Digital Principles and Applications, (Fourth Edition) Tata McGraw Hill Publishing Company Ltd, New Delhi.
2. S. Salivahanan and S. Arivazhagan, Digital Circuits and Design, Vikas Publishing House Pvt. Ltd.
3. R.P. Jain, Modern Digital Electronic, Tata McGraw Hill Publishing Company Ltd. New Delhi.
4. Adel S. Se&a, and Kanneth C. Smith, Microelectronic Circuits, Oxford University Press.

BCA 402: System Analysis and Design

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT-I

Introduction to Systems Design Environment: Systems Development Approaches-Function Oriented. Data Oriented, Object Oriented, Development Process, Methodologies, Tools, Modeling Methods

UNIT-II

Processing Types and Systems, Batch Processing, Real-time PROCESSING, Management Process, Management, Systems Analysis, Programmers, Computer Operators, End Users, System Structure, People, processes, and data, Databases, Personal Systems, Centralized Systems,

UNIT-III

Data Warehousing, data mining, Distributed Systems, Evolution of Distributed processing, Client server systems, Agent Oriented systems

UNIT-IV

System Development Life Cycle, Linear or Waterfall Cycle, Linear cycle phase problem definition, system specification, system design, testing, maintenance Problems with Linear Life Cycle, Iterative Cycles, Spiral model Requirements analysis, Importance of Communication,

UNIT-V

Identifying Requirements, Data and Fact Gathering Techniques, Feasibility Studies, Introduction to Prototyping, Rapid Prototyping Tools, Benefits of prototyping, Interface design tools, user interface evaluations, Introduction to Process Modeling, Introduction to Data Modeling.

References:-

1. Igor Hawryszkiewycz, Introduction to System Analysis and Design, 4th edition, Prentice-Hall.
2. Jeffrey L. Whitten, and Lonnie D. Bentley, Systems analysis and Design Methods 4th edition, Tata McGraw-Hill.
3. Philip L Weaver, Practical SSADM war 4+A Complete Tutorial Guider, Pitman publishing, 1995.
4. Mark Lejk, and David Deeks, an Introduction to System Analysis Techniques Prentice Hall.
5. Don Yeates, Maura Shields and David Helmy, System Analysis and Design Longman group limited, 1994.

BCA 403: Internet and Intranet**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-I**

Internet: Internet Accounts, Telephone, Cable and Satellite connections, Dial up networking, setting up a dial up connection. high speed connection (ISDN, ADSL and Cable modems), Networking Essentials (Lease Line, Routers, Modems), Intranets, E-mail concepts (receiving, sending and receiving Secure E-mail, chatting and conferencing, E-mail mailing list, Newsgroup, IRC,ICQ, Yahoo Pager, Voice mail and Video conferencing.

UNIT-II

World Wide Web : Elements of the Web, Web browser, viewing pages with a browser, using a browser for Mail, News and chat, Security and Privacy issues (cookies, firewalls, executable Applets and scripts, blocking system), Netscape navigator and Communicator and features therein Internet Explorer and features therein, Lynx, Opera finding an installing Players, Plug-Ins and Active controls, dealing with Web pages that contain Active X, Java an Java Script, playing streaming Audio and Video, playing MP music.

UNIT-III

Using Search engines, subscriptions and channels, making use of web resources (Portal, News and weather, sports Personal Financing and Investing, Entertainment, shopping, Computers and Internet, Travel, Health and Medicine, Communities and Clumps), Introduction to E-Commerce.

UNIT-IV

Creating and Maintaining Web Sites: Planning, Navigation and Teems, Elements of a Web page, steps of creating a site, publishing and publicizing site structuring web site Multimedia graphics, Capturing Audio, generating digital file, uploading web pages, in loading web pages, unloading by using FTP, Net load, Front Page Express and Netscape Composer, analyzing web traffic, building traffic to your site, File Transfer Protocol (FTP) and File Transfer Protocol Programs.

UNIT-V

The basics of HTML as used with ASP, Using forms to obtain information from users ASP variables and arrays, ASP control structures (loops, conditions, procedures, functions) ASP objects Creating and reading cookies, Connecting a web page to a database (retrieving updating, and inserting data into a data base. Error handling and debugging ASP scripts, Introduction to XML, Setting up Web servers, Configuring Web and FTP servers.

References:-

1. M.L. Young: Internet Millennium Edition, Tata Mc Graw Hill.
2. Harely Hahn: The Internet, Tata Mc Graw Hill.
3. G. Robertson : Hands on HTML, BPB Publications.
4. D.A. Tauber, B. Kienan: Microsoft From Page 2000, BPB Publications.
5. Joel Sklar : Principles of Web Design, BPB Publications.
6. Stephen W. Active Server Pages, Techmedia.

BCA 404: Networking Technologies and TCP/IP

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT-1

Network architecture, configuring network, network strategies, networks types, LAN, MAN and WAN [Basic concepts, Line configuration, topology, transmission mode, identify key components of network, categories of network, differentiating between LAN, MAN, WANS and Internet]

UNIT-II

The OSI model, the physical layer (bandwidth limited signals, transmission media, wireless transmission), the data link layer, error detection and correction, data link protocols, the medium access sub layer.

UNIT-III

The channel allocation problem, multiple access protocol, IEE standard 802 for LANs and MANs, Bridges, the network layer routing algorithm, congestion control algorithm, internet working, the transport layer, the application layer, MAC protocols for high speeds LANs.

UNIT-IV

Introduction to TCP/IP [Understand the TCP/IP Protocol Suite, its history and modification processes compare TCP/IP to the Open Systems Interconnection (OSI) reference model,

UNIT-V

TCP/IP applications such as FTP, Telnet, DNS, DHCP, Boot, etc.

References:-

1. Andrew S. Tanenbaum, Computer Networks, Prentice Hall
2. Behrouz A forouzan, TCP/IP, Tata Mc Graw Hill Pub. Co.
3. DE Corner and DL Stevens, Internet working with TCP/IP Volume I-III, Prentice Hall of India.
4. Wright and Stevens, TCP/IP Illustrated, Pearson Education Asia.
5. Karanjit S. Siyan, Inside TCP/IP, Techmedia.
6. Minasi, Mastering LAN, BPB Publications.
7. Minoli, Internet, Intranet Engineering, Tata Mc Graw Hill Pub. Co. Ltd.

BCA 405: Electronic and Data Communication

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT-I

Modulation: Principles of Modulation; AM and FM Modulator Circuits, Pulse Code Modulation, Base band Modulation, M-ary Pulse Modulation waveforms, Duo binary signaling and decoding. Digital Band-pass Modulation

UNIT-II

Demodulation: Basics of Demodulation and detection, signals and Noise, Detection of Binary Signal in Gaussain Noise, Demodulation of shaped Pulses, Digital Signal in Gaussain Noise, Demodulation of shaped Pulses, Digital Band Pass Demodulation

UNIT-III

Data transmission [Basic Concepts, Data Communication Systems, Serial Data formats. encoded data formats, error detection and correction], information about microwave [Electromagnetic spectrum, Serial Data formats, encoded data formats, error detection and correction], information about microwave in Communications

UNIT-IV

FM Microwave Radio Repeaters[, Satellite, Geosynchronous Satellites, Look angles, Orbital classifications Spacing and Frequency allocation, Multiple accessing, Channel Capacity.] and optical fiber communication [Basic concept of light propagation, Fiber Cables, Optical fiber versus Metallic cable facilities, Light sources, Optical Detectors, Fiber cable losses, wave division multiplexing, fiber distributed data interface the fiber channel, SONET].

UNIT-V

ISDN [ISDN services, subscriber access to ISDN, B Channels, D Channels, H channels, ISDN services, subscriber access to ISDN, B Channels, D Channels, H channels, ISDN layers, Broadband ISDNI, DSL [Digital Subscriber Lines : HDSL, VDSL, SDSI, IDSL].

References:-

1. M.A. Miller, Data and Network Communications, Thomson Learning.
2. Behrouz A Foruzan, Data Communication and Networking Tata McGraw Hill.
3. Berneard Sklar, Digital Communications, Pearson Education Asia.
4. Wayne Tomasim Electronic Communications Systems, Pearson, Education Asia.
5. B.P. Lathi, Modern Digital Analog Communication Systems, Oxford, University Press.
6. Fred Harshal, Data Communications Communications Networks, Pearson Education Asia.
7. W.A. Sahay, Understnsing Data Communication Network, Vikas Publishing House.
8. Gilbert Held, Understanding Data Communication, Techmedia.
9. Kennedy, 'communication Systems', Tata McGraw Hill.

BCA 406: Web Programming Lab

(L: 0: T: 1: P: 3)

Max.Marks:100

1. Build HTML documents form scratch.
2. View HTML document using a variety of web Browsers
3. Organize information using Lists
4. Use HTML frames and table for page layout.
5. Connect to a variety of resources by using hypertext, Links.
6. Create style sheets to format the look and feel of the pages.
7. Understand key image theory concepts.
8. Create new images from scans or from scratch
9. Optimize image sizes.
10. Create animated gifs and transparent images.
11. Create graphical elements for use on web pages: buttons, banners navigation bars, background tiles.
12. Evaluate a document design for effectiveness, usability and efficiency.
13. Using DHTML create functionalities like animation, stage-based presentations, splash pages, pull-down menus; drop down menus, drag drop techniques.
14. Integrating JavaScript with HTML and DHTML.

BCA 407: Digital Electronics Lab

(L: 0: T: 1: P: 3)

Max.Marks:100

In this lab the student must perform ten experiments based on topics covered in the theory Paper BCA 401: Digital Electronics and Circuits.

BCA 501: Computer Graphics and Image Processing**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-I**

Introduction to Computer Graphics :Definition, Application areas of Computer graphics, Graphical user interface, Cathode ray tubes, Random scan displays, Raster scan displays (with introduction to flickering, interlacing. American standard video etc), Color CRT monitors, Flat panel displays (Plasma Panels, Liquid crystal displays, Electroluminescent displays), Graphics software (GKS, PHIGS), Color Models (RGB, CMYK, HSV, Lookup tables etc.)

UNIT-II

Raster Graphics Algorithms: Line drawing algorithms (DDA, Bresenham's algo), Circle and Ellipse drawing algorithms, filling (Scan-converting Polygon filling, inside outside tests boundary fill and area fill algo).

UNIT-III

Transformations and Projections: 2-D transformations (Rotation, Reflection, shearing, scaling), Homogeneous coordinate representation, Translation, 3-D transformations, Projection classification, Parallel projections, Perspective projections (One point, Two point).

UNIT-IV

Two dimensional Clipping and visible surface detection methods: Viewing pipeline, window and view port, Sutherland Cohen sub division algorithm, Cyrus-beck algorithm, classification of visible surface detection algorithm, Backface algo, Depth sorting method, Area subdivision method etc.

UNIT-V

Introduction to Digital Image Processing: Definition application areas Digital Image Processing, difference between computer graphics and Image processing, The storage and capture of digital images, File forms, Basic digital Image processing techniques like antialiasing, Convolutions, Thresholding etc, Image enhancement.

References:-

1. Hearn & Baker: Computer Graphics (2nd Ed.). Prentice Hall India.
2. Krihsnamurthy N: Introduction to computer Graphics, Tata Mc Graw Hill Edition.
3. Zhigang X. & Plastock R.a. : Theory and problems of Computer Graphics (Schaum's Outline), Tata Mc Graw Hill.
4. Gonzalez & gonzalez, Digital Image Processing, Pearson Education.
5. Jain V.K. Fundamentals of Digital Image processing, Pearson Education.

BCA 502: Software Engineering

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT-I

Software Characteristics, Components, Applications, Software process Models: Waterfall, spiral, Prototyping, Fourth Generation Techniques, Concepts of Project Management, Role of Metrics & Measurements.

UNIT-II

Software Requirements analysis & specifications: Requirement engineering, requirement elicitation techniques like FAST, QFD, requirements analysis using DFD, Data dictionaries & ER Diagrams, Requirements documentation, Nature of SRS, Characteristics & organization of SRS.

UNIT-III

S/W Project planning Objectives, Decomposition techniques: S/W Sizing, Problem-based estimation, Process based estimation, Cost Estimation Models: COCOMO Model.

UNIT-IV

S/W Design: Objectives, Principles, Concepts, Design methodologies Data design, Architectural design, procedural design, Object oriented concepts

UNIT-V

Testing fundamentals: Objectives, principles, testability, Test cases: White box & Black box testing strategies: verification & validation, unit test, integration testing, validation, testing, system testing

References:-

1. Roger, S. Pressman, " Software Engineering-A Practitioner's Approach", Third Edition, McGraw Hill
2. R.E. Fairley, 'Software Engineering Concepts", McGraw Hill
3. Jalota "An Integrated Approach to Software Engineering", Narosa Publishing House.

BCA 503: Simulation and Modeling

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT-I

Definition of System: Types of system-continuous and discrete; Modeling process and definition of a model; Computer work load and prepare rating of its models

UNIT-II

Verification and validation modeling procedures; comparing model data with real system.

UNIT-III

Simulation Process: Use of simulation discrete and continuous simulation procedures; simulation of a time sharing computer system.

UNIT-IV

Simulation languages: A brief introduction to important discrete and continuous simulation language

UNIT-V

Algorithm development and pseudo code writing for simulation problems, Use of database and A.I. techniques in the area of modeling and simulation.

References:-

1. Payer, T.A. : Introduction to simulation , McGraw Hill, 1982
2. Spriet, W.A. : Computer Aided Modeling and Simulation-Academic press, 1982
3. Barnes, B: Modeling and performance Measurement of Computer systems.

BCA 504: Computer Architecture**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-I**

Specifying a CPU, design and implementation of a simple CPU, Memory systems, storage media; virtual and cache memory; programmed I/O Interrupts (types processing of interrupts implementing interrupts inside CPU,) Direct memory access, I/O processors serial communication, RISC instructions sets, instructions pipelines and register windows, RISC vs. CISC.

UNIT-II

Parallel Computer Models: The state of computing, multiprocessors and multicomputers, multivector and SIMD computers, architectural development tracks, Program and Network properties: conditions of parallelism, program partitioning and scheduling, program flow mechanisms.

UNIT-III

System interconnect Architectures: Network Properties and routing, Static interconnection network and dynamic interconnection networks.

UNIT-IV

Processors and memory Hierarchy: Advanced processor technology-CISC, RISC, Superscalar, Vector VLIW and symbolic processors, memory technology, Bus, Cache and Shared Memory.

UNIT-V

Linear Pipeline Processors, Nonlinear Pipeline, processors Instruction pipeline Design Multiprocessors System Interconnects Vector Processing Principles, Multivector Multiprocessors.

References:-

1. J.P. Hayaes "Computer Architecture", McGraw-Hill.
2. Harvey G. Cragon, "Memory Systems and Pipelined Processors", Narosa Publication.
3. V. Rajaranam & C.S.R. Murthy "Parallel Computers", PHI.
4. R.K. Ghose Rajan Moona & Phalguni Gupta, "Foundation of parallel processing". Narosa Publications.
5. Kai Hwang and Zu, "Scalable parallel Computers Architectures", McGraw-Hill.
6. Stalling W., "Computer Organization & Architecture", PHI.
7. Kai Hwang "Advanced Computer Architecture", McGraw-Hill.

Reference :

BCA 505: Network Security and Cryptology**(L: 3: T: 1)****Max.Marks:100****Min.Marks:40****UNIT-I**

Introduction: Goals and settings, The symmetric setting, The asymmetric setting. Other goals Pseudorandom Number Generation, Authenticated key exchange, Coin flipping, What cryptography is about, Protocols, parties and adversaries, cryptography and computer security the rules of the game, Approaches to the study of cryptography, Phases in the cryptography's Development, Cryptanalysis-driven design, Shannon security of symmetric encryption, Computer rational complexity theory, Atomic primitives

UNIT-II

Block Ciphers: What is a block cipher? Data Encryption Standard (DES) Key recovery attacks on block ciphers, Iterated DES and DESX, Advanced encryption Standard (AES), Limitations of recovery key based security, Problems, Pseudorandom Functions: Function families, Random functions and permutations, Pseudorandom Functions, Pseudorandom permutations, Modeling block ciphers, Example attacks, Security against key recovery, the birthday attack, The PRP/PRF switching lemma, Historical notes.

UNIT-III

Symmetric Encryption: Some Symmetric Encryption schemes, Example chosen-plaintext attacks, IND-CPA implies PR-CPA, Security of CTR modes, Security of CBC with a random IV, Historical notes.

UNIT-IV

Hash Functions: The hash function SHA1, Collision resistant hash functions, Collision, attacks. One-way ness of collision resistant hash functions, Polynomial evaluation is an almost universal hash, function, The CBC MAC function, Collision-resistance under hidden-key attack., Message Authentication: The setting, Privacy does not imply authenticity, Syntax of message-authentication schemes a definition of security for MACs , The PRF-as-a MAC paradigm, The CBC MACs.

UNIT-V

Number-Theoretic Primitives: Introduction to discrete algorithm related problems, the choice of group; The RSA system, Historical notes, Asymmetric Encryption: Asymmetric encryption schemes, Notions of security, Hybrid encryption, Digital signatures: Digital signature schemes, A notion of security, RSA based signatures.

References:-

1. Cryptographic & N/W security: Principles & Practices by Stalling, Prentice Hall.
2. Network Security Essentials: Applications & standards by Stalling, Pearson Education Asia, 2003.

BCA 506: AutoCAD Lab

(L: 0: T: 1: P: 3)

Max.Marks:100

AutoCAD: Installation of AutoCAD, Introduction of AutoCAD, Drawing commands, editing commands. Display commands. 3D commands, Drawing aids, Information commands, Blocks and Layers, Layout of Building etc.

BCA 507: Computer Architecture and Networking Lab

(L: 0: T: 1: P: 3)

Max.Marks:100

Windows 2000 advanced server/Linux -Shell programming Creation of parent-child processes. Inter-Process Communication Programming.

BCA 601: Management Information Systems

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT-I

Introduction to system and Basic System Concepts, Types of Systems, The Systems Approach, Information System: Definition & Characteristics, Types of information, Role of Information in Decision-Making, Sub-Systems of an Information system: EDP and MIS management levels, EDP/MIS/DSS.

UNIT-II

An overview of Management Information System: Definition & Characteristics, Components of MIS, Frame Work for Understanding MIS: Information requirements & Levels of Management, Simon's Model of decision-Making, Structured Vs Un-structured decisions, Formal vs. Informal systems.

UNIT-III

Analysis & Designing of Information Systems, Conceptual system design: Define the problems, set system objectives, establish system Constraints, determine information needs, determine information sources, develop alternative conceptual designs and select one, document the system concept, prepare the conceptual design report.

UNIT-IV

Implementation, evaluation and maintenance of the MIS, Pitfalls in MIS Development.

UNIT-V

Functional MIS: A Study of Marketing, Personnel, Financial and production MIS.

References:-

1. J. Kanter, "Management/Information Systems". PHI.
2. Gordon B. Davis & M.H. Olson. "Management Information Systems: Conceptual Foundation, structure & Development."
3. Robert G. Murdick & Joel E. Ross & James R. Claggett, "Information Systems for Modern Management" PHI.
4. Lucas, "Analysis, Design & Implementation of Information System.

BCA 602: E-Commerce

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT-I

Introduction to Electronic Commerce: Definition of Electronic Commerce, The scope of Electronic Commerce, Business Strategy in an Electronic Commerce: The value chain, Competitive advantage, Business strategy.

UNIT-II

Business to Business Electronic Commerce: Inter-organizational transactions, Electronic markets, Electronic data interchange (EDI), EDI: the nuts and bolts, EDI and Business Inter organizational E-Commerce.

UNIT-III

Designing: Introduction to Technical Design and Construction, A Client Server Model of E-Commerce, Understanding Technical Design, Understanding Construction, Introduction to Detail Design. Any example of Applying Detailed Design: Introduction to High-Level Design, Performing High-Level Design, High Level design of Business transactions applying High-Level design, Any Example of Applying High-level Design.

UNIT-IV

Testing & Implementation: Introduction to Testing. Understanding Testing, Applying Testing. Challenges an Opportunities in Applying Verification and Validation.

UNIT-V

Implementation : Understanding Implementation. Applying Implementation Planning. An Example of Applying Implementation Planning. Challenges and Opportunities Implementation Planning.

References:-

1. Developing E-Commerce Systems by Jim A. Carter PHI.
2. E-Commerce new vistas for business by T.N. Chandra, R.K. Suri, Sanjiv Verma, Dhanpat Rai & Co.
3. David Whiteley, "E-Commerce", Tata McGraw Hill, 2000
4. Eframi Turban, Jae Lee, David King, K. Michale Chung, "Electronic Commerce", Pearson Education, 2000

BCA 603: E-Banking and Security Transactions

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT-I

Introduction: Definition, Transaction websites components, E-Banking support services, Wireless Banking.

UNIT-II

E-Banking Risk: Transaction/Operation Risk, Credit Risk, Liquidity/Internet Risk, Price Risk, Strategic Risk, Reputation Risk.

UNIT-III

Risk Management of E-Banking Activities: Board of Management oversight, Managing outsourcing relationship, Information security Program Administrative control, Legal and compliance Issue.

UNIT-IV

Laws regulation and guidelines: Electronics money, Regulating e-transactions, Role of RBI and Legal issues, Transnational transactions of E-Cash, Credit Card and Internet, Laws relating to Internet credit cards, Secure Electronic Transaction.

UNIT-V

E-security: Introduction to New Challenges and new Threats, Security, Legal consideration.

References:-

1. Mark O' Neill "Web Services Security".
2. Nixon Brian "Teach yourself E-Banking".
3. E-Banking: Global Perspective by Vivek Gupta, Edition June 2000, ICAI University Press.

BCA 604: Mobile Computing

(L: 3: T: 1)

Max.Marks:100

Min.Marks:40

UNIT I

Introducing the Mobile Internet: The Mobile Internet is here, The Rise of Mobile data. Key Services for the mobile Internet, Business opportunities.

UNIT II

WAP: the Mobile Internet Standard: Making the Internet Mobile: Challenges and Pitfalls, Overview of the Wireless Application Protocol

UNIT III

Implementing WAP Services: The Wireless Markup Language, Where Next: The Mobile Internet Future

UNIT-IV

Enhanced WML: WML Script and WTAI, User Interface Design: Making Wireless Applications Easy to Use.

UNIT V

Advanced WAP: Tailoring Content to the Client, Push Messaging, Wireless Telephony Applications, Building and Deploying End-to-End WAP Services.

References:-

1. Sandeep Singhal, "The Wireless Application Protocol, Writing Applications for Mobile Internet", Pearson Education, 2000

BCA 605: Project

(L: 0: T: 4: P: 8)

Max.Marks:300