SEMESTER - II SEM BCA

Technical English and report writing

1.Grammar & vocabulary: Review of elements of grammar & usage for Effective communication. Exercises focusing on grammar and vocabulary.

2. Reading & writing skills: Reading passages from books, newspapers, journals and informative and interesting and writing them in concise forms .

3. Technical report writing: Collection of data, planning and organization. Technical paper writing, Project preparation and project report.

4. Communication: Development of communication skills needed in real life situations.

Tasks and exercises focusing on vocabulary and communication skills.

Mathematical foundations for computer science

1.Sets, Relations and Functions: Definition of set, intersection and union and compliments. Principle of inclusion and exclusion, De-Morgan's laws ,cardinality difference, Cartesian products, relations, matrix representation of a binary relation, Functions: one-to-one, into and onto, inverse mappings.

2.Matrix theory:Review of fundametals ,equivalent matrices,elementary row (coloumn)operation,rank of a matrix by reducing it to the normal form,finding the inverse of a non-singular matrix by operations .Homogeneous and non-homogeneous

System of equations in n unknown,consistency criterion,eigen values eigen vectors of a square matrix, Caley Hamilton theorem (with proof).

3.Groups rings and fields: Definetion of a group, semi-group,sub-groups,results on sub-groups,Cyclic group,normal sub-group(important theorms),homomorphism cosets,

Langrange's theorem,fundamental theorem of group,Defnition of a ring and a feild

4. Diffrential calculus: Limits, Continuity, Differentiabilty, partial differentiation, Euler's theorem, Rolle's Theorem (with proof), statements of mean value and Taylor's single variable theorem.

5. Differential calculations: Review of fundamentals, first order linear differential equations. Solution of linear differential equations with constant co-efficient.

Programming in C

1. Basics of programming: Algorithm, flow chart and psuedocode.

2. Introduction to C: Development of C, features, constants and variables,
Data types, operators and expressions, library functions

3.I/O statements: Formatted and unformatted i/o , scanf(), printf() , getchar(),
Putchar() functions.

4. Control structures: Conditional and un-conditional, if, for, while and do-while, switch, break and continue, goto statement.

5. Arrays: One and multi-dimensional arrays, strings and string functions, bubble sort, linear and binary search.

6. Functions: Defnitions, different types, advantages, calling a function, passing parameters, call by reference and call by value, local and global variables, recursive functions.

7. Pointers: Declaration, operation on pointers, relationship between pointers and arrays, address arithmetic, array of pointers, pointer to pointer, pointer to function, dynamic memory allocation.

8. Structures and unions: Defining a structure, classification and union,

User-defined data types, pointer to a structure, structure as an argument to a Function.

9. Macros: Defnition, preprocessor, macro classification if, else if, end if, define.

10. Storage classes: Different types, enumerated data type, register data class, bitwise operators.

11. Files: Sequential files, file pointers, random files, processing a data file,

File error handling, unformatted data file implementation of copy and merge commands.

Computer organization and Microprocessors

1. Basic building blocks: Number systems, floating point representation, 1's and 2's compliment. Boolean algebra, basic gates, combination logic circuits, flip flops, JK, RS and MASTER SLAVE registers and counters.
2. Basic structure of computer: Functional units, operational concepts & bus structure.
3. Control units: Data paths, single bus, 2-bus, execution of instruction.
4. Memory & peripheral devices: .Concepts, static and dynamic, I/O devices, video terminal printers, disks.
5. Introduction to 8085: Evolution, architecture of 8085, instruction sets, interrupts.
6. ALP of 8085: 8-bit multiplication and division,multi-byte addition,subtraction,delay routines.

Probability & statictics:

1. Descriptive statistics: Need for quantifying data and quantitating data. Frequency distribution-discrete and continous.Histogram, frequency curve, cumulative frequency curve.
2. Measures of central tendency: Mean , median and mode, measures of dispersion- quartile deviation, standard deviation, coefficient of variation(partition values-quartiles, declass and percentiles).

3.Skewness: Karl Pearson and Bowler's formula, Kurtosis(definition).
4.Curve fitting: Liners, quadratic, exponential: y=ab^x, y= ax^b, y=ae^bx.
5.Correlation and regression: Defnition explanation of concepts, problems.
6.Probability: Basic concepts- trial, random experiment, sample space, event, equally likely, mutually exclusive events.Defnitions of probability apriori, posteriori .Addition and multiplication, rules of probability. Independent events, conditional probability.Baye's theorem.
7.Random variables: Definition, discrete and continuous. Bivariate probability distribution(definition only)expectation-definition and problems
8.Probabiltiy distributors: Binomial, poison, exponential, normal mean and variance and problems. Outline of t and x^2 distributions.
9.Interference: Definition of null, alternate simple and composite hypothesis, level of significance, type 1 and type 2 errors, testing quality of single and two means, single and two proportions(small and large samples)., independence of attributes, confidence interval for means and proportions.
10.C-Progamming lab
11. Assembly language programming lab
II SEM BCA

Business communication & personality development

1.Introduction to communication: Principles of communication, objectives of communication, media of communication, types of communication and barriers of communication.

2.Business communication:Kinda of business letters, layout of business letters, enquires and replies, orders and execution ,credit status enquiries, complaint and adjustment collection letters, circular letters, sales letters, bank correspondence, application letters, e-mail, on line marketing.

3. Personality development: Art of public speaking, Preparation of resume, facing of interviews, group discussion.

Discrete mathematical structures with applications of computer science

Mathematical logic

1.Statements and notations: Connectives, negation, conjunction, disjunction conditional and biconditional, statement formulas and trunck cable, tautology and contradictions, equivalence of formula, tautological implications.

2. Normal forms: Disjunctive normal forms, conjuctive normal forms, Principal conjuctive normal forms, theory of inferences for statement calculus: Valiging using truth table, rules of inference.

3. Predicate calculus: Predicates, the statement functions, variables and quantifiers, predicate formulas, negations of

quantifiers.

4. Inference theory of the predicate calculus: Valid formulas and equivalences.

Linear algebra

1. Vector space: Definition for vector spaces, examples, properties of vector space, subspaces, criterion for a subset to be a subspace, linear combination, concepts of linesar independent and dependent subsets, basis and dimension of a vector space, standard results related to basis. Examples illustrating concepts of results.

   2.Linear transformation: Definition of linear transformation, properties of linear transformation, matrix of linear transformation, change of basis, range and kernel of a linear transformation, rank , nullity theorem, verification of rank, non singular linear transformations.

Graph theory

1.Introduction: What is graph? History of graph theory and applications-Famous problems in graph theory.

2. Concepts: Incidence, degree, vertex, finite and infinite graphs, null graphs, Isomorphism, sub graphs, walks, trails, paths, circuits , connected and disconnected graphs, Euler graph, Hamiltonian paths and circuits, operations on graphs, weighted graphs.
3. Trees and fundamental circuits: Cut sets and cut vertices, trees, properties of tress, pendant vertices in tree, distances and centers in a tree, rooted and binary trees, spanning trees, fundamental circuits, spanning trees in a weighted graph, cut sets and their properties(No theorems).
4. Matrix representations of graphs: Incidence matrix, sub-matrices, circuit matrix, rank of matrix, adjacency matrix, path matrix(No theorems)
5. Planar graphs: Coloring, covering and partitioning: What is a planar graph? Kuratowski's theorem, detection of planarity, coloring problem, chromatic number, chromatic partitioning, chromatic polynomial, how to find the chromatic polynomial of a graph, mathing and covering, the four colour problems.
6. Directed graphs: What is directed graph? Types of diagraphs and binary relations, directed paths and connectedness, euler diagraph, a cyclic diagrah, and decyclation, trees with directed edges, fundanebtal circuitsnin diagraphs, adjacency matrix(No theoerems).
7. Graph theory: An algorithm approach: a spanning tree, set of fundamental circuits, connectedness and components, polish notation, absoresence, traveling salesnan problem, a puzzle with multi-coloured cubes, finding all spanning tree sof a graph, shortest peth from a specified vertex, depth-first search on a graph.

Data structures using C

1. Data structures overview: Elementry data organization, time and space, complexity of an algorithm, operations on data structures, string processing.
2. Recursive functions: Advantages _towers of hanio problem.
3. Lists: Arrays, implementation, sparse matrix
4. Linked lists: Singly, doubly and circular lists, operations on a linked list.
5. Stacks: queues: Stacks, representation, postfix, prefix, and infix notstions, ques, deques, priority queues.
6. Trees: Binary tree representation , search trees, insertion, deletion.
7. Sorting and searching: Insertion sort, selection sort, merge sort, radix sort, heaps ort, linear and binary search.

Business data processing using cobol

1. Advantages, disadvantages of COBOL, elements of COBOL, COBOL words, data names, Divisions of COBOL-indentification division, data division, level numbers, picture clauses, working storage section, procedure division.
2. simple arithmetic statements: add, subtract, multiply, divide, compute statements, move groups , elementary move, editing characters, accept display, stop run statements.
3. Control structures: IF compound test condition, nested IF , GOTO with depending option, perform statements-simple-perform, perform with through option, time soption, until option, varying option,, varying after option.
4. Arrays: Occurs clause, One dimentional and two dimentional arrays.
5. Subroutines: Introduction, calling a subroutine, passing parameters.
6. File system: Files- master file, transaction file, report fle, text file , file organization, indexed, relative file organizations, tpupes of file access, file operations- sequential file organizations-deleting a file, logical and physical description of file, open, close, write, read statements, read write statements, delete statements, relative file organizations creation.

System analysis and design

1. System concepts and information systems environment: Introduction, the system concepts,definition,characteristics of a system, elements of a system, types of system.

   Introduction, the system development life cycle, the role of a system analyst.
2. System planning and initial investigation: Information gathering, the tools for structured analysis-data flow diagram, data dictionary, decision tree, structured English, decision tables, feasibility study, feasibility considerations, steps in feasibility study, csot-benefit analyasis.
3. The process and stages of system design:The process of design, logical and physical design, audit consideration, I/O & forms design.

   4.System testing:Quality assurance, levels of quality assurance, audit trail, implementation and software maintainance.
   5.Cobol lab
   6. Data structures lab.

III SEM - BCA

Data base management system

1.Basic concepts: Data, DBMS system,database system, DB users,DB languages, caharacteristics of DB,implication of DB.
2. Storing databases: Secondary storage devices, files on disk, operations on files, sorting files,hashing, indexing
3. Data models: Introduction,advantages, different types,, physical & logical data independence.
4. E-R data model: Entities, attributes, relation-ships, drawing E-R diagrams.
5. Relational model: Introduction,relational DB concepts, constrinats, relational a;gebra, SQL, relational calculus, normalization concepts.
6. Network and hierarchical databases: Network model, constraints, network DB system, hierarchical data model, parent child relationshipsand hierarchical database system.
7. System implementation: Concurrency control techniques, recovery techniques, DB security & authorization, introduction to distributed database and client server architecture.

Object oriented programming using C++

1. Introduction: Evolution of program methodologies- procedure oriented versus object oriented Programming-characteristics of OOPS, Basics of OOPS, merits and demerits of OOP.
2. Data types: Operators and expressions: different data types, operartors and expressions in C++ Enumerated data types-declaration and their usage.
3. Input/Output statements: Comparision of Stdio.h and iostraem.h, Cin and Cout
4. Decision and loop: Conditional statement,If-Else statement,FOR-loop, while-loop, DO-While
Loop, break, continue, switch and goto statements.
5. Arrays string and structures: Array fundamental-single dimentional, muli-dimentional arrays, operation on arrays, fundamentals of strings, different methods to accept strings different string manipulations,array of string, basics of tructures-declaring and defining structures-accessing structure members, array of structures,unions ,difference between structure and unions.

6. Functions in C++:Built in functions, user defined functions.calling the function, function definition, function declaration, parameter actual and formal, different methods of calling the
Function, call by value, call by reference, overload function-different types of arguments , diiferent number of arguments, inline function,default arguments, storage classes-automatic external,static,register.
7. Objects and classes: Simple class-defining the class, defining the data members and members functions, access specifier-private-public, protected objects as physical objects, C++ data types, scope resolution operator, difference between class and structure.
8. Constructor and destructor: Constructor with arguments, constructor without arguments, constructor without overloading, copy constructor, convert constructor, convert constructor, destructor.
9. Operator overloading: Defining the operator overloading, overloading unary operatot, overloading binary operator, manipulation of string using overloaded operator, rules for overloading operator.
10. Inheritence: Defining derived classes, Protected access specifier, public inheritance and private inheritance-member

accessibility, constuctors and destructors in derived classes, single inheritance, multi-level inheritance, hierarchical inheritance.
11. Pointer: Pointer declaration and access, pointer to void, pointer and arrays, pointer constant and pointer variable, pointer and functions, call by pointer arrays, array of pointer to string, printer sort, memory management- new and delete, pointer to object-refrencing numbers, using pointers, self containing class, this pointer, returning values using this pointer.
12.Virtual function: Normal member functions accessed with pointers, virtual member functions access, late binding, pure virtual function, abstract class, virtual base class.
13. Friend functions and static functions: Purpose, defining friend functions, friend classes, static function, accessing static function, membering positive objects.
14. Console Opeartor: C++ stream and C++ stream classes, unformatted I/O operators, formatted I/O operators manipulators, user-defined manipulator.
15. Files: Class for file stream operators, opening and closing a file, file nodes, writing an object to
Disk, reading an object from disk, binary versus character files, I/O with multiple object,
fstream class, file pointer- specifying the position, specifying the object, telling function, seeking function, command line arguments.

Operating systems

1.Introduction: Types of operating systems, functions of opating systems, services, system Components, system calls.
2. Process management: process, pre-emptive and non-premtive, CPU schrduling(FCFS, round robin, priority) concepts, process synchronization, semaphores deadlocks, detection recovery
3. Memory management: Functions, single contiguous, partitioned memory management, paging, segmentation, demand paging, virtual memory management.
4. File management: Concept, access methods, directory structures, allocationmethods,free space management, secondary storage structure.
5. Case studies: Dos, windows-NT.

Accounting and financial management

1.Introduction: Principles, concepts and concerntions, double entry system, of accounting, journal ledger.
2.Subsidiary books with special reference to simple cash book and three column cash book.
3. Trial balance and final accounts of sole trader: Preparation trial balance, adjusting Entries, including revenue for bad debts, renvenue for discounton debtors and creditors,
Preparation of final accounts.
4. Final accounts of joint stock companies

Financial management

1. Introduction: Meaning and scope of financial management, functions of functional manager.
2. Ratio analysis: Meaning of ratio, advantages, limitations, types of ratios and their usefulness, liquidity and ratios, profitability ratios, efficiency ratios, solvency ratios, preparations of balance sheet.
3. Funds flow statement: Meaning and concepts of funds,preparation of fund flow statement.
4. Unit costing: Preparation of cost sheet and tender price statement.
5. Marginal costing: Meaning and definition, conepts in marginal costing, marginal cost equations, P/V ratio, B, E. P., margin of safety, sales to desired profit, problems on the above.
6. Budgetory control: Meaning and definition, Preparation of flexible budget and cash budget.
7. Standard costing: Meaning and standard cost and standard costing, analysis of variances- material and labour variances only.

Computer oriented numerical methods and linear programming.

1. Finding the roots of equation: Interactive method, bisection method, Newton raphson method,regular-falsi method, secant method.
2. Solving simulataneuos linear equation: Gauss elimination method, guass Jordan method, Guass-siedel interactive methods.
3. Ordinary differential equations: Taylor series, Euler method, modified euler method, runge kutta II and IV methods.
4. Numerical integration: Simpson's 1/3 and 3/8 rule, trapezoidal rule.
5. Interpolation: Difference table, newton's forward and backward inetrpolation
6. Linear programming: Introduction, formulation of a LPP, graphical method, two-phase method, Duality theory.
7. Tranportion problems: Introduction, formulation, finding initial basic feasible solution using
North-west corner rule, row minima and column minima method, vogel,sa approximation
Method, finding the optimal solution, using MODI method.
8. Assignment problems: Introduction, formulation- Hungarian method, solving a traveling

Salesman problem.

C++ LAB

APPLICATION LAB-I MS OFFICE & NUMERICAL METHODS LAB.

IV SEM B.C.A

System software

1.Introduction: What is system software? Components of system software, evolution of system Software.
2. Machine structure: Machine language and assembly language, general machine structure,Memory, registers, data instructions, machine language-address modification using index Registers, looping assembly language programs e.g. using literals and pseudops.
3. Assembler: general design procedure, design of assembler, statement of problem, data Structures, format of databases, algoritm in brief.
4. Macro language and the macro processor: Macro instructions, features of macro facility
i)Macro instruction argument ii) conditional macro expressions iii) macro call with macro iv) macro instruction defining macros single pass algorithm.
5.Loader: i) Loader schemes

a) Compile and go loader.
b) General loader scheme.
c) Absolute loader.
d) Sub routine linkers.
e) Relocating loader.
f) Direct linking loader.
g) Binder, linking loader, overlays, dynamic binder.

i) Design of an absolute loader
ii) design of a direct linking loader.

a) Specification of problem b) Specification of data structure. c) Format of database
d) Algorithm.

6. Compliers: Different phases, Lexical phase-recognizing tokens, databases used and algorithm, Syntax and interpretation phase-recognizing syntactic units and interpreting their meaning, creating intermediate form-arithmatic and non-arithmatic and executable statement.
Data base used and algoritm, storage alloacation phase-database used and algoritm, code generation phase-databeses used and algorithm.
Optimization phase- machine independent and machine dependent optimizations with examples, assembly Phase-database use din algorithm, General model of a compiler with Flow chart.

Computer Graphics

1. Practical applications of computer graphics: Display, hard copy, and interactive input devices,Display processors, graphic software.
2. Points and lines: Line-drawing and circle generating algorithms, character generations, Instruction sets for display processors, line styles, color and intensity, area filling, character Attributes, inquiry functions, bundled attributes.
3. Two dimensional transformation: Scaling, translation and rotation, matrix representations and homogenous co-ordinatior, composite transformations, concepts of a window, clipping algorithm window to view report transformation.
4. Concept of a segment: Segment files, segment attributes, physical input devices, logical classification of input devices. Interactive picture- construction techniques, input functions
5. Three dimensional co-ordinate systems: Three dimensional display techniques, three dimentional Graphics packages, polygon surfaces, curved surfaces, fractals, representation of solid objects, Constructive solid geometry octrees.

Software engineering

1. Introduction: Evolution , S/W characteristics, Components, applications, myths, software

Engineering process, S/W engineering methods, phases in S/W development.

2. Project management and metrics: Project management process, measuring software, Loc And function point metrics, metrics for software quality.
3. Estimation: Sope, resources, estimation techniques, empirical models, automated tools.
4. SRS and Software design: Role of SRS, Problem analysis, requirements specification design Fundamentals, design specification, structured design, OO design, and verification.
5. Coding and testing: Program development, verification, monitoring and control, testing Fundamentals, functional testing, structural testing, testing strategies
6. SQA and software: SQA plans, formal technical reviews, metrics, corrective maintenance, adaptive maintenance and preventive maintenance.

Unix operating system.

1. Introduction: History, features of Unix system architecture.
2. Unix file system: Boot block, super block, In ode table, data block, storing and accessing files, Directory and file related commands.

3. Process management": Process creation, process examining and process killing, background Process, piped process, process control, FOR, EXIT, WAIT and EXEC commands, demon Process, delaying of processing and processing at a specified time.
4. Special tools and utilities: Filters, stream editor, SED and AWK, unix system calls and library Functions, processes, signals and interrupts, writing simple calls, storage and Compression facilities.
5. System administration: User and supervisory privileges and facilities, controlling Processes, accessing the file system, security issues, secondary storage management.

6. Shell Programming: Bourne korn and c shells-shell variables, parameters, shell commands, if, while, until, for, break and continue, simple programs.

7. Unix system communication: Introduction, write, read, wall commands, sending and Handling mails.

DBMS LAB.

APPLICATIONLAB-II ACOUNTING PACKAGESAND EDITOR DESIGN.
UNIX LAB.

V SEM B.C.A

Java programming

1. Introduction to java history, features of java
2. An overview of JAVA..
3. Data types, variables and arrays, operators, control statements.
4. Inheritance, packages and interfaces.
5. Exception handling.
6. Multi-threading programming, string handling.
7. Classes and methods, sub classing and dynamic binding.
8. I/O file handling, exploring java .
9. Applets, Event handling.
10. AWT(Abstract windows tool kit, working windows, graphics and text).
11. Using AWT controls, Layout managers and menus.
12. Advanced JAVA

a) Introduction to servelets
b) Introduction to RMI
c) Introduction to swing.
d) Introduction to JDBC.
e) Introduction to BEANS.

Analysis and design algorithms

1. A simple example of design, insertion sort, code for insertion sort, analysis of time complexity , Asymptotic notations and time complexity and writing efficient programs.
2. Harner's method of evaluating a polynomial at a given point, finding maximum and minimum for a given set of numbers, straight max, straight min, combinatio9ns for max and min. Analysis of linear and binary search algorithms.
3. Divide and conquer algorithms, sorting, multiplication of two long integers, strseen's matrix Multiplication.
4. Greedy approach, optimum scheduling, fractional kanspack problem, minimum spanning trees,Single source shortest path problem.
5. Dynamic programming, design and analysis, traveling salesman problem, optimal Parmetrisation for product of a sequence of matrices.
6. Back tracking and branch and bound methods, least cost method, 4-queens problem using back and tracking , traveling salesman problem using branch and bound method.
7. Lower bound theory: A brief introduction to NP and NP hard problems.

Computer networks-I
Objectives of networking: Structure, architecture, standardization of OSI model
Example networks, public Arpanet, SNA.
Physical layer: Transmission on media-twisted pair, base band and broadband, coaxial cable, fibre optic, satellites, analog transmission, digital transmission, transmission and switching ISDN services and architecture.
MAC sublayer: Static and dynamic channel allocation, ALHOA protocols, LAN protocols, IEEE standars for LAN'S, fibre optic network, settelite networks, MAC sublayer in public networks.Datalink layer: Designing issues, error detection nd correction, sliding window protocols, datalink layer in public networks.
Network layer: Design issues, routing algorihms, congestion control algorithms, internet working, network layer in public networks.
Transport layer: Design issues, connection management, x.20, transport layer in public networks.
Session layer: Design issues, remote procedure calls, sessions layer in public networks.
Presentation layer: Design issues, data compression techniques, cryptography, presentation layer in public networks
Application layer: design issues, FTP and management, e-mail, virtual terminals, other applications and application layer in public networks.

Simulation and modeling 1. System models: The concept of a system, system environment, stochastic activities, continous and discrete systems, system modeling, types of models, static and dynamic mathematical models, principles used in modeling.

2. System studies: Sub-system, environment, production and management.Segments, types of study, system analysis, design and postulation.
3. Techniques of system simulation: Monte carlo method, comparison of simulation and analytical Methods, experimental nature of simulation, types of system simulation, numerical computation Techniques for continous and discrete models, distributed lag models, progress of simulation Study.
4. Discrete system simulation: Discrete events, representation of time, generation of arrival Patterns, simulation fo programming tasks, gathering statistics, measuring utilization and occupancy, recording distribution and transient times, discrete simulation languages, study . and use one simulation languages, case-study, simulation of inventory system, telephone system.
5. Continous system simulation: Continous system model, hybrid simulation, case-study, pure pursuit problem, waterfall simulation.
6. Introduction to GPSS: General description, succession of events, choice of paths, facilities and Storage, gathering statistics, conditional transfer program, control statement.

Computer graphics lab
JAVA programming lab
Simulation lab

VI --- SEM B.C.A

Computer networks

1.Local area networks: Features, components of LAN, benefits of a network, LAN evaluation, Planning and installing a LAN
2. TCP/IP: Origin, layering, internet address, port numbers, DNS, client-server Model, RFC'S service, API, link layer, SLIP, MTU.

3. Internet protocol: IP header, routing, subnet addressing, masks, example of sub
net, ARP introduction, ARP cache, ARP packet format, ARP examples, proxy ARP, RARP-RARP packet format, examples, server design. ICMP message
Types, address mask request and reply. Timestamp request and reply, ping Program and trace execute program.
4. IP and dynamic routing: Routing principles, dynamic routing, RID, OSPF, BGP, CIDR, user datagram protocol, IGMP, DNS, FTP, BOOTP.
5. TCP: Header, tcp connection establishment and termination, interactive data flow, bulk data flow time out and transmission.
6. Telnet and remote login: File transfer protocol, SMTP, NFS, other application.
Artificial intelligence
1.Introduction: What is AI ? Definitions, importance of AI, applications.
2. Knowledge and knowledge representation: PL and FOPL, use and rules ,associative networks, frames, conceptual dependency and scripts.
3. Interference using different methods of representation of knowledge, PL and FOPL: Conversion to clausal form, resolutions, rules, production system and inference, inference in associative networks and frames.
4. Natural language processing: Introduction, grammars and basic parsing techniques.
5. Expert system: Introduction, rule based and knowledge based, knowledge acquisition maintenance and manipulations.
6. Learning: Introduction, different methods of learning.
7. Picture processing and pattern recognition: Introduction, the recognition and classification process, learning classification patterns, visual image understanding.
8. A brief introduction to LSP:
Internet and information technology.
Basic internet concepts: History, components, security, protocols, internet addressing, DNS, and directory services.
Internet applications: Electronic mail, news groups, UUCP, FTP and TELNET.
3. World wide web: Hyper text markup language, uniform resource locator,
HTTP, common gateway interface, multipurpose internet mail extensions,
Web browsers, search engines.
Intranet: E-commerce and video conferencing and recent development in information technology
Internet and web page design lab
Designing a web page mini project

Project work

Students should be divided into batches, each batch containing not more than four Students. The project carries 80 marks and is distributed as follows:
1. Demonstration and presentation 65 marks.
2. Viva- voice 15 marks.

In viva-voice the questions must be directed only on the project work to access the involvement and understanding the problem by the students.

Project work

Students should individually develop a project. They should implement their projects In college in any RDBMS package or any language available in the college. The students have to collect the data outside practical hours. Project may be taken outside but must be implemented in the college. Internal marks can be awarded by the guide by evaluating the performance fo the students during rhe course of the project work.
The project carries 240 marks and is distributed as follows:
1. Demostration & presentation. 200 marks.
2. Viva-voice. 40 marks.

In viva-voice the questions must br directed only on the project work to access the involvement and understanding of the problem by the students.