Govt. Science College , (Autonomous), Jabalpur
Deaprtment of Physics

BCA I YEAR

BCA-11-FUNDAMENTALS OF COMPUTERS AND PC-SOFTWARE

Max Marks: 40 **Min Marks: 13**

Unit-I:

Introduction to Computers: History of development of Computers • Computer system concepts • Characteristics • Capabilities and limitations • Generations of Computers. • Von Neumann Architecture • Classification of Computers • Instruction Execution Cycle • Basic Components of a computer system – Control Unit, ALU, I/ O Devices, Memory – RAM, ROM, EPROM, PROM, Flash Memory and other types of memory. Types of Software – System software, Application software, Utility Software, Demoware, Shareware, Freeware, Firmware, Free Software. • Operating Systems – Functions, Types – Batch Processing, Single User, Multi User, Multiprogramming, Multi-Tasking. • Programming languages – Machine, Assembly, High Level, 4 GL. • Data representation in computers. Computer Viruses.

Disk Operating System (DOS) • Introduction, History & Versions of DOS. DOS basics • Physical structure of disk, drive name, FAT, file & directory structure and naming rules, booting process, DOS system files. Basic DOS Commands.

Unit-II:

Windows: features of windows — desktop, start menu, control panel, my computer, windows explorer, accessories. Managing multiple windows, arranging icons on the desktop, creating and managing folders, managing files and drives, logging off and shutting down windows. Entertainment – CD Player, DVD Player, Media Player, Sound Recorder, Volume Control.

WORD PROCESSING: Introduction to Word processing, Names of some commonly used word processing software.

Introduction to MS-Word: Feature, document creating, formatting, standard toolbar, drawing toolbar, tables and other features. Mail-merge, insertion of files, pictures, clipboard, graphs, print formatting, page numbering and printing documents. Spell Check, Thesaurus, Find & Replace, Inserting Header, Footer, page number & pictures. Working with Tables,

Introduction to MS - power point, Auto -wizard, creating a presentation using Auto content wizard, Blank presentation, creating, saving and printing a presentation, adding slide to a presentation, slide view, outline view, slide sorter view, notes view and slide show view. Changing text font and size, selecting text style and colour, to set header and footer. Using, bullets, clipart and word art gallery. Applying design template creating graph. Adding transitions and Animation effects, setting timings for slide show preparing note pages, preparing audience handouts.

Unit-III:

Introduction To Spreadsheet (MS-Excel): Definition And Advantages of Electronic Worksheet, Working On Spreadsheets: Cell Referencing, Range & Related Operations, Setting, Saving And Retrieving Worksheet File, Inserting, Deleting, Copying And Moving of Data Cells, Inserting And Deleting Rows & Columns, Copying, inserting, Renaming the sheet of workbook. General Short-cut commands, Entering text and numeric data, Entering date and time different functions, formatting text and numeric data. Functions and Other Features: Classification and Usage of Various Built-In-Functions In Worksheet, Passwords, Protecting A Worksheet Printing of the worksheet, page margin setting and adding header and footer, Transferring Data to and From Non Worksheet Files, Database Handling, Creating, Naming & Executing Macros. Creating graphs.

Unit-IV:

PC Maintenance and Troubleshooting: Opening the PC and identification. Study of different blocks, Assembling and disassembling. Basic Device Configuration and Installation-Printers, Microphone, Monitor, Mother Board, Sound Card, Video Card, tips on Trouble Shooting.

Introduction to Computer Hardware, Components of Mother-boards & its types, Ports, Slots, Connectors, add on cards, Power supply units, and cabinet types. Storage devices: Primary & Secondary storage medium.

Introduction to servers and network security Types of servers: Files servers, Email Servers, Proxy servers etc. Basics of Internet and Intranet: Types of Internet connections: Dialup, Broadband, Leased Line, Wi-Fi, Wi-Max, 2G, 3G, 4G, WWW, E-mails, Search Engines, Social Networking. Cloud application. Audio-video Conferencing. Voice over Internet Protocol (VOIP).

Unit-V:

Overview of System Analysis and Design, Business System Concepts, System Development Life Cycle, Preliminary Investigation, Feasibility Study, System Analysis, System Design and Testing, Implementation & Evaluation. Overview of MIS: Introduction, Role of IT, MIS - characteristics and application areas, Business and Technology trends -specialization, management by methodology, decentralization, internationalization etc.

Characteristics of a good Business Unit. Data and Information, Difference between data and information Introduction to data

Processing, fields, Records and Files. Types of files: Master files and Transaction file. Introduction to ERP, SCM.
Practicals
Note: As per the syllabus and under guidance of respective faculty every student has to perform minimum 25 lab. exercisecovering all units with equal weightage.

TEXT BOOKS:

1. Computers Fundamentals and Architecture by B. Ram
2. Microsoft Windows XP Step by Step , PHI
3. William Stallings, Operating System, Pearson Education
4. Norton, Introduction to Computers, McGraw Hill
5. Ron Mansdield, Microsoft Office, BPB Publication
6. Fundamentals of Computers: P. K. Sinha
7. System Analysis and Design by Elias M Awad.

REFRENCES BOOKS:

1. P C Software for Windows by R K Taxali
2. P C Software Bible by S.Jaiswal
3. Computers Today: Suresh K.Basandra
4. Operating System: Achyut S. Godbole
5. Management Information systems by Gerald V. Post & David L. Anderson.
6. Understanding Computer Fundamentals & Dos By G.K. Iyer
7. MS-Office Interactive course by Greg Perry, Techmedia
8. MS Office Complete Reference TMH Publication.

Govt. Science College , (Autonomous), Jabalpur
Deaprtment of Physics
BCA I YEAR

BCA-12- COMPUTER SYSTEM ARCHITECTURE

MAX. MARKS: 40 **MIN. MARKS: 13**

Unit-I

DATA REPRESENTATION- Data types, Number Systems: Binary number system, Octal &Hexa–Decimal Number system. **Fixed-Point Representation:** Is & 2s complement, Binary fixed-point representation. Arithmetic operation on binary numbers, overflow & underflow.

Unit-II

DIGITAL LOGIC CTRCUITS: Logic gates, AND,OR,NOT,GATE& their truth tables, NOR NAND & XOR gates. **BOOLEAN ALGEBRA :**Demorgan's theorem.**MAP STMPLOCATION:** Minimization techniques, K-Map. Sum of product & product of sums. **COMBINATIONAL & SEQUENTIAL CIRCUITS:** Half adder, full adder, full subtractor, Flip-Flops-RS, & T Flip-Flops, Shift registers, counters

Unit-III

CPU ORGANTSATIONS- ALU & CONTROL CIRCUIT: Idea about arithmetic circuit program control, Instruction sequencing. **INTRODUCTION TO MICROPROCESSOR:**Microprocessor Architecture (8086), System buses, Register, program counter, Block diagram of a Micro Computer System. Microprocessor control signals, Interfacing devices. INTROCUTION TO MOTHER BOARD: Idea about different cards and their functions, SMPS.

Unit-IV

INPUT-OUTPUT ORGANIATION: I/O interface, properties of Simple I/O Devices and their controller, Isolated versus memory-mapped I/O, Modes of Data Transfer, Synchronous & Asynchronous Data Transfer, Handshaking, Asynchronous serial transfer, I/O processor.

Unit-V

MEMORY ORGANISATION : Auxiliary memory, Magnetic drum, Disk & Tape Semi conductor memories, Memory Hierarchy, Associative memory, Virtual memory, Address space & memory space, Address Mapping, Page table, Page replacement, Cache memory, Hit Ratio, Mapping techniques, Writing into cache.

TEXT BOOK :

Computer System Architecture by: M. MORRIS MANO

NOTE : There shall be ten question in the questions paper, two questions from each unit. The student will have to attempt five questions selecting one question from each unit.

Govt. Science College , (Autonomous), Jabalpur
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BCA I YEAR

BCA-13-PROGRAMMING AND PROBLEM SOLVING THROUGH 'C'

Max Marks: 40 **Min Marks:13**

Unit-I
Classification of programming language: Structured programming concepts, modular programming, top-down programming approach. **Problem solving using computer:** coding, compilation, debugging and testing, documentation, implementation and maintenance**.** **Problem-Solving Techniques**: Steps for Problem-Solving, Design of Algorithms, Definition, Features of Algorithm. Flowcharts, Basic Symbols used in Flowchart Design. **Basics of C:** History of C, salient Features of C, Structure of a C Program, a Simple C Program, Compiling a C Program, Link and Run the C Program.
Unit-II
Variables and Constants: Character Set, Identifiers and Keywords, Rules for Forming Identifiers, Data Types, Qualifiers, Variables, Declaring Variables, Initialising Variables, Constants, Types of Constants, operators, expressions, operator precedence and associativity. **Conditional Statements and Loops:** Decision Control Statements: ifStatement, switch Statement, Loop Control Statements: while Loop, do-while Statement, forLoop, Nested Loop, gotoStatement, Break Statement, Continue Statement. Storage Classes, Managing input/output function: formatted and unformatted
Unit-III
Functions: Definition of a Function, types of function, Declaration of a Function, Function Prototypes, passing arguments to a function, call by value, call by reference, command line argument, recursion. **Pointers:** pointers and their characteristics, address and indirection operators, pointer Type declaration and assignment, pointer arithmetic, passing pointers to functions, array of pointers, introduction to pointer to pointer.
Unit-IV
Array: one dimensional array Declaration, Initialization, insertion, deletion of an element form an array, finding the largest/smallest element in an array, two dimensional arrays, addition/multiplication of matrices. **String:** Declaration and Initialization of Strings, Array of Strings, Built-in String Functions strlen, strcpy, strcmp,strcat, strlwr, strrev Function, Other String Functions. **Structures and Unions:** Declaration of Structures, Accessing the Members of a Structure, Initializing Structures, Structures as Function Arguments, Structures and Arrays, Unions, Initializing an Union, Accessing the Members of an Union.
Unit-V
File Handling: Concept of files, Open a file using the function fopen(), Close a file using the function fclose( ), file opening mode. Input and Output using file pointers, Character Input and Output in Files, String Input / Output Functions, Formatted Input / Output Functions, Block Input / Output Functions, Sequential Vs Random Access Files, text file vs binary file. **Graphics programming**: introduction, functions, stylish liens, drawing and filling images, palettes and colours.
Practicals
Note: As per the syllabus and under guidance of respective faculty every student has to perform minimum 50 laboratory exercise covering all units with equal weightage.

Text Books:

1. E. Balagurusamy , " Programming in ANSI C"
2. How to solve it by computer by R.G.Dromy, PHI
3. Let us C by YashwantKanetkar
4. Programming in C by S.S.Bhatia

5. A first course in Programming with C, T. Jeypoovan

References Books:

1. Programming in C:Denis Ritchie
2. "C The Complete Reference", H. Schildt, Tata McGraw Hill
3. Programming and problem solving through 'C'(Elsevier)

Suggested list of programs for practical

1.Write a program to print digits of entered number in reverse order.
2.Write a program to print sum of two matrices.
3.Write a program to print subtraction of two matrices.
4.Write a program to print multiplication of two matrices.
5.Write a program to demonstrate concept of structure.
6. Write a program for finding the root of a Quadratic Equation .
7. Write a program for Marksheet.
8. Write a programme for finding the sum of given matrices of order m x n
9. Write a programme for finding the multiplication of given matrices of order m x n
10.Write a program to generate even/odd series from 1 to 100.
11.Write a program to find area of a circle, rectangle, square using case.
12.Write a program to check whether a given number is even or odd.
13.Write a program whether a given number is prime or not.
14.Write a program for call by value and call by reference.
15.Write a recursive program to calculate factorial of a given number.
16.Write a program to generate a series
1+1/1!+2/2!+3/3!+----------+n/n!
17.Write a program to create a pyramid structure

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18.Write a program to create a pyramid structure

```
1
12
123
1234
```

19.Write a program to create a pyramid structure

```
1
22
333
4444
```

20.Write a program to reverse a string.
21.Write a program to find whether a given string is PALINDROME or not.
22.Write a program to input 10 numbers add it and find it's average.
23.Write a program to generate series

1+1/2!+1/3!+----------+1/n!

24.WAP to print table of any number.
25.WAP to print Fibonacci series
26.WAP to find length of string without using function.
27.WAP to perform all arithmetic operations using case statement.
28.WAP to check entered number is Armstrong or not.

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BCA-I YEAR

BCA-14-INTERNET & WEB TECHNOLOGY

Max Marks: 40 **Min Marks:13**

UNIT – I

Introduction to Internet

Internet, Growth of Internet, Owners of the Internet, Anatomy of Internet, ARPANET and Internet history of the World Wide Web, basic Internet Terminology, Net etiquette. Internet Applications – Commerce on the Internet, Governance on the Internet, Impact of Internet on Society – Crime on/through the Internet.

Internet Technology and Protocol

Packet switching technology, Internet Protocol TCP/IP, Router, Internet Addressing Scheme: Machine Addressing (IP address), E-mail Addresses, Resources Addresses.

UNIT – II

Internet Connectivity

Connectivity types: level one, level two and level three connectivity, Setting up a connection: hardware requirement, selection of a modem, software requirement, modem configuration, Internet accounts by ISP: Telephone line options, Protocol options, Service options, Telephone line options – Dialup connections through the telephone system, dedicated connections through the telephone system, ISDN, Protocol options – Shell, SLIP, PPP, Service options – E-mail, WWW, News Firewall etc.

Internet Network

Network definition, Common terminologies: LAN, WAN, Node, Host, Workstation, bandwidth, Interoperability, Network administrator, network security, **Network Components**: Severs, Clients, Communication Media, **Types of network:** Peer to Peer, Clients Server, Addressing in Internet: DNS, Domain Name and their organization, understanding the Internet Protocol Address. **Network topologies**: Bust, star and ring, Ethernet, FDDI, ATM and Intranet.

UNIT – III

Electronic Mail

Email Networks and Servers, Email protocols –SMTP, POP3, IMAp4, MIME6, Structure of an Email – Email Address, Email Header, Body and Attachments, Email Clients: Netscape mail Clients, Outlook Express, Web based E-mail. Email encryption- Address Book, Signature File.

Current Trends on Internet

Languages, Internet Phone, Internet Video, collaborative computing, e-commerce.

Web Publishing and Browsing

Overview, SGML, Web hosting, HTML. CGL, Documents Interchange Standards, Components of Web Publishing, Document management, Web Page Design Consideration and Principles, Search and Meta Search Engines, WWW, Browser, HTTP, Publishing Tools.

UNIT IV

HTML Programming Basics

HTML page structure, **HTML Attribut**es , HEAD Elements , Input elements ,HTML Text, HTML links, HTML document tables, HTML Frames, HTML Images, multimedia , Introduction to CSS.

Java Script:

Introduction to JavaScript. Basic Syntax. Control Structures. Writing Functions. Working with Arrays. The Document Object Model. Events Handling, Using Browser Objects. Object Oriented in JavaScript.

UNIT – V

Introduction to AJAX :

AJAX, RIA & WEB 2.0. The XML, HTTP Request Object. Using AJAX in Web Applications.

Interactivity Tools

ASP, VB Script, JAVA Script, JAVA and Front Page, Flash

Internet Security Management Concepts, Information Privacy and Copyright Issues

Overview of Internet Security, Firewalls, Internet Security, Management Concepts and Information Privacy and Copyright Issues, basics of asymmetric cryptosystems.

Practicals:

Note: As per the syllabus and under guidance of respective faculty every student has to perform minimum 25 lab. exercise covering all units with equal weightage.

Text Books :

1.Greenlaw R and Hepp E “Fundamentals of Internet and www” 2nd EL, Tata McGrawHill,2007.
2. Ivan Bayross, “HTML, DHTML, JavaScript, Perl CGI”, 3rd Edition, BPB Publications.
3. D. Comer, “The Internet Book”, Pearson Education, 2009.

Reference Books:

1. M. L. Young,”The Complete reference to Internet”, Tata McGraw Hill, 2007.
2. Godbole AS &Kahate A, “Web Technologies”, Tata McGrawHill,2008.
3. Jackson, “Web Technologies”, Pearson Education, 2008.
4. B. Patel &Lal B. Barik, ” Internet & Web Technology “, Acme Learning Publishers
5. Leon and Leon, “Internet for Everyone”, Vikas Publishing House.

Govt. Science College , (Autonomous), Jabalpur
Deaprtment of Physics
BCA-15-CYBER SECURITY

Max Marks: 40 **Min Marks:13**

UNIT – I
Basics of Communication Systems, Transmission Media , ISO/OSI and TCP/IP Protocol Stacks, Local Area Networks, Wide Area Networks, Internetworking, Packet Formats, Wireless Networks , The Internet
UNIT – II
Security principles, threats and attack techniques, Introduction to security, Information, security, Security triad: Confidential, Integrity, Availability, Focus of control, Security threats and attacks, Security management, Authentication and access control Identification, Authentication: Authentication by passwords, Protecting passwords, Access control structures, Types of access control
UNIT – III
Cryptography, Cryptographic mechanisms, Digital signatures, Encryption, Certificates Lattice and reference monitors, Security levels and categories, Lattice diagram, Reference monitors, Security kernel, Hardware security features, Protecting memory
UNIT IV
Security models, Chinese wall model, Bell-La Padula, Biba, Non-deducibility, Non-interference, Other models, Network security, Protocol design principles, ISO architecture, IP security, SSL/TLS, Firewalls, Intrusion detection
UNIT – V
Unix security and Windows security, Subjects, objects and access control software security and database security, Memory management, Data and code, Relational databases Access control in databases, Statistical database security , General security principles, Access components, Access decisions, Administration and management issues

Text Books :

1. **Computer Security, 2nd.- ed.**
   Author: Dieter Gollmann
   Publisher: John Wiley & Sons, 2006
   ISBN: 0-470-86293-9

2. **Security in Computing, Fourth Edition**
   Author: Charles P. Pfleeger, Shari Lawrence
   Publisher: **Pearson India**

3. **Cryptography and Network Security**
   Principles and Practices 3rd. ed.
   Author: William Stallings
   Pearson Education

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BCA-I YEAR

BCA-16-DISCRETE MATHEMATICS AND ALGEBRA

Max Marks: 40 **Min Marks:13**

UNIT – I Set Theory:
Definition of Sets, Venn Diagrams, complements, Cartesian products, power sets, counting principle, cardinality and countability (Countable and Uncountable sets), proofs of some general identities on sets, pigeonhole principle. Relation: Definition, types of relation, composition of relations, domain and range of a relation, pictorial representation of relation, properties of relation, partial ordering relation. Function: Definition and types of function, composition of functions, recursively defined functions.
UNIT – II Algebra of logic:
Proposition logic, basic logic, logical connectives, truth tables, tautologies, contradiction , normal forms(conjunctive and disjunctive), modus ponens and modus tollens, validity, predicate logic, universal and existential quantification. Notion of proof: proof by implication, converse, inverse, contrapositive, negation, and contradiction, direct proof, proof by using truth table, proof by counter example.
UNIT – III Algebraic Structure:
Binary composition and its properties definition of algebraic structure; Groyas Semi group, Monoid Groups, Abelian Group, properties of groups, Permutation Groups, Sub Group, Cyclic Group, Rings and Fields (definition and standard results)
UNIT IV Graphs:
Graph terminology, types of graph connected graphs, components of graph, Euler graph, Hamiltonian path and circuits, Graph coloring, Chromatic number. Tree: Definition, types of tree(rooted, binary), properties of trees, binary search tree, tree traversing (preorder, inorder, postorder). Finite Automata: Basic concepts of Automation theory, Deterministic finite.
UNIT – V Determinant and Matrices:
Determinants properties, solution of simultaneous equations by Cramer's rule. Definition of special kinds of matrices, Review of matrices, inverse of matrix. Normal forms, Linear dependence, Rank, Application to theory of solutions of system of linear equations, linear transformation, Orthogonal, Unitary and Hermitian matrices, Eigen values and Eigen vectors,

Text/Reference Books:

1. Kenneth H. Rosen, "Discrete Mathematics and its Applications", Mc.Graw Hill, 2002.
2. J.P.Tremblay& R. Manohar, "Discrete Mathematical Structure with Applications to Computer Science", Mc.Graw Hill, 1975.
3. V. Krishnamurthy, "Combinatories:Theory and Applications", East-West Press.
4. Seymour Lipschutz, M.Lipson, "Discrete Mathemataics" Tata McGraw Hill, 2005.
5. Kolman, Busby Ross, "Discrete Matheamatical Structures", Prentice Hall International.
6. A text book of Discrete Mathematics by H K Pathak and D C Agrawal ,ShikshasahityaPrakashan, Meerut.

Govt. Science College , (Autonomous), Jabalpur
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BCA II YEAR

BCA-21-DATA STRUCTURES USING C++

Max Marks: 40 **Min Marks: 13**

Unit-I
Introduction, OOPS languages, characteristics of OOP's languages, application of OOP's, OOP's paradigm, concepts: object, class, data abstraction, data encapsulation, inheritance, and polymorphism. Static and dynamic binding, message passing, benefits of OOP's, disadvantage of OOP's.
Unit-II
C++ Programming Concepts: input and output in C++, functions in C++- value parameters, reference parameters, Parameter passing, function overloading, arrays, pointers, new and delete operators, class and object, access specifiers, friend functions, constructors and destructor, Operator overloading, Inheritance and Polymorphism. Exceptions-throwing an exception and handling an exception.
Unit-III
Basic Concepts – Data Structures, Algorithm Specification-Introduction, Recursive algorithms, Data Abstraction, Performance analysis- time complexity and space complexity, Asymptotic Notation-Big O, Omega and Theta notations, Complexity Analysis Examples, Introduction to Linear and Non Linear data. **Stack:**Definition, Array implementation of stack (static stack): Operations PUSH, POP, And TRAVERSE. Applications of stack: Infix, Prefix, Postfix representation and evaluation using stack, Use of stack in recursive implementation. **Queue:**Definition, Array implementation of queue (static queue): Operations INSERT, DELETE and TRAVERSE. Introduction to Circular queue: Definition & implementation, Priority queue, Double ended queue, Applications of queue.
Unit-IV
Introduction to linked list: Definition, advantaged, basic operations on linked list, stacks and queues using linked list, doubly linked list, circular linked list, applications of linked list. **Searching and Sorting Techniques**: Sequential search, binary search, insertion sort, selection sort, quick sort, bubble sort, heap sort, comparison of sorting methods.
Unit-V
Tree: Trees-basic terminology ,binary trees, tree representations as array and linked list, basic operations on binary tree, traversal of binary trees:- inorder, preorder, postorder. Applications of binary tree, threaded binary tree, AVL tree, Introduction to B-Tree & B+ tree. Hash Table, Collision resolution technique. **Graphs:** Definition, Terminology, Directed, Undirected and Weighted Graph, Representation of Graph, Graph Traversal-Depth first, Breadth first search, Spanning tree, Minimum Spanning tree, Shortest path algorithm.
Practicals:
Note: As per the syllabus and under guidance of respective faculty every student has to perform minimum 50 lab exercise covering all units with equal weightage.

Text Books:

1. Object Oriented Programming with C++, Balaguruswamy Tata Mgraw Hill (2008).
2. Object Oriented Programming in C++, Robert Lafore, Sams; 4 edition.
3. YedidyahLangsam Moshe J. Augenstein, Aaron M. Tenenbaum, "**Data Structures using C & C++",** PHI
4. G.S.Baluja, "**Data Structures Through C++**",DhanpatRai& Co.,4th Edition

5. Fundamentals of Data Structures BySartajSahani.

Reference Books:

1. Seymour Lipschutz,"**Data Structures**", Schaum's Outline Series, Tata McGrawHill.
2. Adam Drodzek, "**Data Structures & Algorithm in C++**", 2nd Edition

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BCA II YEAR
BCA-22-DATABASE MANAGEMENT SYSTEM & RDBMS

Max. Marks: 40 **Min. Marks: 13**

UNIT-I

Purpose of database system, views of data, data models: relation, network, hierarchical, instances and schemas, data dictionary, types of database languages:-DDL, DML, DCL, TCL, structure of DBMS, advantages and disadvantages of DBMS, 3-level architecture proposal:-external, conceptual & internal levels. Database System architecture, level of abstraction, Database users and DBA, Classification of Database Management Systems, Components of database system, Traditional File Systems vs. Modern Database Systems, Introduction and applications of DBMS, Data Independence.

UNIT-II

Entity relationship model as a tool of conceptual design: entities & entities set, relationship, relationship set & relationship types, attributes, role, participation and mapping constraints, keys, strong and weak entities, Advance ER Model Features: generalization, specialization & aggregation, reducing ER diagram to tables, Roles, Participation.

UNIT-III

Fundamentals of set theoretical notations: relations, domains, attributes, tuples, concept of keys: primary key, super key, alternate key, candidate key, foreign key, fundamentals of integrity rules: entity & referential integrity ,extension and intention, relational algebra: select, project, Cartesian product, different types of joins: theta, equi, natural, outer joins, set operations.

Evaluation of SQL, Between clause, Distinct Clause, Order by Clause, Group by Clause, SQL Functions, Sub queries, Handling null value, Aggregate function, User Defied Function, , View. Relational Calculus, Introduction, Tuple Relational Calculus, Domain Relational Calculus.

PL/SQL Programming using Oracle, Oracle Data types, Looping and Decision Making, Working with Stored Procedure, Trigger, Cursor, Package, Index, Synonym and Sequence. Various Programming Examples.

UNIT-IV

Functional Dependencies, Good & Bad Decomposition and Anomalies as a database: A consequences of bad design, Universal relation, Normalization: INF, 2NF, 3NF &BCNF normal forms, multivalued dependency, join dependency, 4NF, 5NF.

Relational Database design, Features of good relational database design, Codd's Rule, Integrity constraints, Armstrong Axioms, Closure Set of Functional Dependency, Closure Set of Attributes

UNIT-V

Basic concepts: -Indexing and Hashing, B-tree Index files, Hashing: Static & Dynamic hash function, Index definition in SQL: Multiple key accesses. Transaction Management, ACID properties, Serializability, Concurrency Control, Lock and types of Locks, Two Phase Locking Protocol, Check Points, Recovery Techniques, Deferred and Immediate data modification.

Emerging Database Technology: Data Warehouse, Data Mining, Distributed database, Mobile Database, Object Oriented Database, Geographical Database.

Practicals

Note: As per the syllabus and under guidance of respective faculty every student has to perform minimum 25 lab. exercise covering all units with equal weightage.

Text Books-

1. Database System Concepts by Henry Korth and A. Silberschatz.
2. Simplified approach to DBMS, Prateek Bhatia, Gurvinder Singh Kalyani Publication
3. Database Management System by SeemaKedar, Technical Publication

Reference Books-

1. An Introduction to Database System by BipinDesa
2. An Introduction to Database System by C.J.Date.
3. AtulKahate, “Introduction to Database Management Systems”,
4. Raghu Ramakrishnan, “Database Management Systems”,
5. G.K.Gupta, “Database Management Systems”, Tata McGraw Hill, 2011.

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BCA – II YEAR

BCA-23-SOFTWARE ENGINEERING

MAX. MARKS: 40 **MIN. PASS MARKS: 13**

Unit-I

Introduction :
Software Engineering-Software Process- Generic process model-Prescriptive process model-specialized, unified process-Agile development-Agile Process- Extreme Programming- Other agile Process models-Software engineering Knowledge-core Principles-Principles that guide each framework Activity.

Unit-II

Requirements :
Requirements Engineering-Establishing the Groundwork-Eliciting Requirements- Developing use cases-Building the requirements model-Negotiating, validating Requirements-Requirements Analysis-Requirements Modelling Strategies.

Unit-III

Design Modeling With Uml:
Modeling Concepts and Diagrams - Use Case Diagrams - Class Diagrams - Interaction Diagrams - State chart Diagrams - Activity Diagrams - Package Diagrams - Component Diagrams – Deployment Diagrams - Diagram Organization- Diagram Extensions. Design Process- Design concepts: Abstraction, Architecture, patterns, Separation of Concerns, Modularity, Information Hiding, Functional Independence, Refinement, Aspects, Refactoring, Object Oriented Design Concepts, Design Classes- Design Model: Data, Architectural, Interface, Component, Deployment Level Design Elements .

Unit-IV

Software Implementation :
Structured coding Techniques-Coding Styles-Standards and Guidelines- Documentation Guidelines-Modern Programming Language Features: Type checking-User defined data types-Data Abstraction-Exception Handling- Concurrency Mechanism.

Unit-V

Testing And Maintenance Testing:
Software Quality- Software Quality Dilemma- Achieving Software Quality- Testing: Strategic Approach to software Testing- Strategic Issues- Testing: Strategies for Conventional Software, Object oriented software, Web Apps-Validating Testing- System Testing- Art of Debugging.
Maintenance: Software Maintenance-Software Supportability- Reengineering- Business Process Reengineering- Software Reengineering- Reverse Engineering- Restructuring- Forward Engineering-Economics of Reengineering.

TEXT BOOKS :

1. Roger S, “Software Engineering – A Practitioner’s Approach”, seventh edition, Pressman, 2010.
2. Pearson Edu, “Software Engineering by Ian sommerville”, 9 th edition, 2010.
3. UgrasenSuman , “Software Engineering: Concepts and Practices” , Cengage Learning India, 2013

REFERENCES :

1. Hans Van Vliet, “Software Engineering: Principles and Practices”–, 2008.
2. Richard Fairley, “Software Engineering Concepts”, 2008.

Govt. Science College , (Autonomous), Jabalpur
Deaprtment of Physics
BCA II YEAR

BCA-24-OPERATING SYSTEM with UNIX/LINUX

Max Marks: 40 **Min Marks: 13**

Unit-I
Introduction to Operating Systems, Operating system services, multiprogramming, time sharing system, storage structures, system calls, multiprocessor system. Basic concepts of CPU scheduling, Scheduling criteria, Scheduling algorithms, algorithm evaluation, multiple processor scheduling, real time scheduling I/0 devices organization, I/0 devices organization, I/0 devices organization, I/0 buffering.
Unit-II
Process concept, process scheduling, operations on processes, threads, inter-process communication, precedence graphs, critical section problem, semaphores, classical problems of synchronization. Deadlock problem, deadlock characterization, deadlock prevention, deadlock avoidance, deadlock detection, recovery from deadlock, Methods for deadlock handling
Unit-III
Concepts of memory management, logical and physical address space, swapping, contiguous and non-contiguous allocation, paging, segmentation, paging combined with segmentation. Concepts of virtual memory, demand paging, page replacement algorithms, allocation of frames, thrashing, demand segmentation. Security threads protection intruders-Viruses-trusted system. Introduction to distributed systems and parallel processing.
Unit-IV
Unix operating system, background, philosophy, help facility, The file system, structure of file system, Basic Command related to file system. **Utilities**: more, file, wc, file comparison (cmp, comm, diff) , lp, banner, cal, date, who, tty, sty commands. The Bourne shell: sh preceding a command by its own combining commands, pattern matching, echo, pipes, tees, shell variables and shell scripts, simple filters, Advanced filters. **The process:** shell process, parent and children process status, system processes, multiple jobs , foreground and background, wait commands, pre mature termination of process, job execution with low priority, multiple jobs in foreground, shell layers, timing processes.
Unit-V
Communication and scheduling, Execute at later running jobs, periodically. Programming with shell: system variable, profile, conditional execution, script termination, Conditional and loop control statements, set and shift statement. System Administration: super user, security, user services, floppy disk, management operation, files system, administration backups.
Practicals
Note: As per the syllabus and under guidance of respective faculty every student has to perform minimum 25 lab. exercise covering all units with equal weightage.

TEXT BOOK

1. Operating System Concepts, Addison Wesley, 4th Edition, A. Silberschatz and P. Galvin. 1994.
2. Sumitabha Das, “Unix : Concepts and Applications”, Third Edition, 2006,Tata Mc-Graw Hill
3. Modern Operating System, A.S Tanenbaum., Prentice Hall of India

4. Operating System by Deitel

REFERENCE BOOK:

1. Maurice J. Bach, “Design of the Unix Operating System”, Third Edition,2000,PHI.
2. ISRD Group, Basics of OS, UNIX and SHELL Programming” TMH (2006)
3. A User guide to unix system”, Thomas Rebecca yate, Second Edition,2002,.Tata McGraw Hill.
4. Stephen Prata “Advanced Unix -A programmer’s Guide”.

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BCA – II YEAR

BCA-25-ACCOUNTING AND FINANCIAL MANAGEMENT

MAX. MARKS: 40 **MIN. MARKS: 13**

Unit-I
Introduction: Financial Accounting-definition and Scope, objectives of Financial Accounting, Accounting v/s Book Keeping Terms used in accounting, users of accounting information and limitations of Financial Accounting.
Unit-II
Conceptual Frame work: Accounting Concepts, Principles and Conventions, Accounting Standards concept, objectives, benefits, brief review of Accounting Standards in India, Accounting Policies, Accounting as a measurement discipline, valuation Principles, accounting estimates.
Unit-III
Recording of transactions: Voucher system; Accounting Process, Journals, Subsidiary Books, Ledger, Cash Book, Bank Reconciliation Statement, Trial Balance. Depreciation: Meaning, need & importance of depreciation, methods of charging depreciation.(WDV & SLM).
Unit-IV
Preparation of final accounts: Preparation of Trading and Profit & Loss Account and Balance Sheet of sole proprietary business. Introduction to Company Final Accounts: Important provisions of Companies Act, 1956 in respect of preparation of Final Accounts. Understanding of final accounts of a Company.
Unit-V
Computerised Accounting: Computers and Financial application, Accounting Software packages. An overview of computerized accounting system - Salient features and significance, Concept of grouping of accounts, Codification of accounts, Maintaining the hierarchy of ledger, Generating Accounting Reports.

Recommended Books:

1. Fundamentals of Accounting & Financial Analysis: By Anil Chowdhry (Pearson Education)
2. Financial accounting: By Jane Reimers (Pearson Education)
3. Accounting Made Easy: By Rajesh Agarwal& R Srinivasan (Tata McGraw –Hill)
4. Financial Accounting for Management: By Amrish Gupta (Pearson Education)
5. Financial Accounting for Management: By Dr. S. N. Maheshwari (Vikas Publishing House)

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BCA II YEAR

BCA-26-COMPUTER ORIENTED NUMERICAL METHODS

Max Marks: 40 **Min Marks:13**

Unit-I
NUMERICAL COMPUTATIONS : Computer Arithmetic: Floating Point Number Operations, Normalization and their consequences. Iterative Methods : Bisection Methods, False Position Methods, Newton Raphson Method, Secant Method, Graffes Root Squaring Method, Convergence of Solution
Unit-II
Simultaneous Liner Equation : Solution of Simultaneous Liner Equation – Gauss Elimination Method, Gauss – Seidal Method, Gauss – Jordan Elimination Method, Triangularization Method & Pivoting Condensation, III Conditioned Equation & Refinement of solution Curve Fitting : Curve Fitting Method, Least Curve Fitting, Non Linear Curve Fitting.
Unit-III
Difference Operators And Interpolation: Definition Of Forward, Backward, Shifting, Divided, Difference Central and Averaging Operators and their Relationships. Newton's Forward Interpolation Formula, Newton's backward Interpolation Formula Newton's divided Interpolation Formula. Lagrange's Interpolation Formula.
Unit-IV
Numerical Differentiation: Numerical Differentiation using Newton's Forward Interpolation Formula, Newton's Backward Interpolation Formula Newton's divided Interpolation Formula. Numerical Integration : General Quadrature Formula, Newton- Cote's Formula, Trapezoidal Rule, Simpson's one Third Rule, Simpson's Three Eight Rule.
Unit-V
Numerical Solutions of Ordinary Differential Equations : Euler's Method , Euler's Modifies Method. Tailor's Series Method, Picard's Method, RungaKutta Second Order and Fourth order Method.

TEXT BOOK:

1. V. Rajaraman, Computer Oriented Numerical Methods, Prentice Hall, India.

REFERENCE BOOKS:

1. S. S. Sastry, Introductory Methods of Numerical Analysis. M. K. Jain, S.R.K. Iyengar& R. K. Jain, Numerical Methods for Scientific and Engineering Computation.
2. H. C. Saxena, Finite Differences and Numerical Analysis.
3. Modes A., Numerical Analysis for Computer Science.
4. Numerical Analysis by gupta and malik . (TEXT)
5. Numerical Analysis by Shastri
6. Computer based Numerical Algorithm by Krishnamurthy.

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BCA III YEAR

BCA-31-OBJECT ORIENTED PROGRAMMING CONCEPTS USING JAVA

Max Marks: 40 **Min Marks:13**

UNIT I
Primitive data types – integer, Short, Long, byte, float, double, Unicode, Character set, Boolean, their ranges, defaults initial values, wrapping of integer arithmetic, casting comments, identifiers and reserved words, local variables, operators and operator precedence, examples and exercises.
UNIT II
Statements simple and compound, Uses of control do, for, while, switch, break, case continue, label, class type data: String, Arrays, example and exercises.
UNIT III
Definitions and naming conventions for the members of the JAVA classes, instance fields and methods, Initialization by constructor, Initialization by Default constructor, Multiple Definition of constructors, creation of objects, access methods. Examples and exercises.
UNIT IV
Inheritance, Super class, Sub class, Method overloading, interface, thread, Multithreading example, synchronized, Exception (try-catch-final blocks examples.) examples and exercises.
UNIT V
Java Virtual machine concept, Java Platform overview, programming Examples to clarify use of object, threads, exceptions and packages for I/O, file and string handling. examples and exercises.
Practicals
Note: As per the syllabus and under guidance of respective faculty every student has to perform minimum 50 lab. exercise covering all units with equal weightage.

TEXT BOOK

1. Complete Reference (Java 2) – Herbert Schildt - Tata McGraw Hill
2. Programming with java E. Balagurusamy Tata McGraw Hill, New Dehli, 2nd edition 2002.

REFERENCE BOOKS :

1. Joseph O'Neil, Teach yourself java, Tata McGraw Hill, New Dehli, 2001.
2. Java script : Don Gosselin, Thomson Learning (vikas Publication)
3. Java in a nut shell – Flanagan – Orielly Publication

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BCA III YEAR

BCA-32-COMPUTER NETWORKS

Max Marks: 40 Min. Marks:13

Unit I
Introduction: Computer Network, Goals and Applications, Models – OSI and TCP/IP, Types of networks: LAN, MAN and WAN, Topologies, LAN components – File server, Workstations, Network Adapter Cards. Networking medium: twisted pair, coaxial cable, optical fiber, Digital data rates, Serial Data Formats, Encoded data Formats, Connection Oriented and Connectionless services, Switching Techniques – Circuit Switching, Packet Switching, Message Switching.
Unit II
Data Link Layer**:** Design Issues, Framing, Error detection: Parity Check, LRC, VRC, Check Sum and Cyclic Redundancy Check (CRC); Correction Technique: Hamming code. Flow Control: Elementary Data Link Protocols: An Unrestricted Simplex Protocol, Simplex Stop-and-Wait Protocol, Sliding Window Protocols: One-Bit Sliding Window Protocol, Go Back N and Selective Repeat. Data link layer in the Internet: SLIP and PPP.
Unit III
Limits of Communication, RS 449 Interface Standards, RS 422 and RS 423. Multiplexing methods : FDM, TDM, WDM, sampling theorem and quantization, Delta Modulation.MAC Sublayer**:** Multiple access protocols: Pure Aloha, Slotted Aloha, CSMA Protocols; Collision- Free Protocols; IEEE MAC Sublayer protocols: 802.3, 802.4, 802.5:Ethernet, Fast Ethernet, Token Bus, Token Ring, FDDI, Wireless LANs.
Unit IV
Network Layer: Design issues, Routing Algorithms: Optimality Principle, Shortest Path Routing, Flooding, Distance Vector Routing. Link State Routing, Hierarchical Routing, Broadcasting Routing, Multicast Routing. The Network Layer in the Internet: Internet Protocol, IP addresses and Internet Control protocols.
Unit V
Transport Layer: Elements of Transport Protocols, Addressing, Connection Establishment & Release, Flow Control & Buffering, Multiplexing. Introduction to UDP & TCP. Application layer**:** DNS, WWW and HTTP, Cookies, Proxy Server. E-mail Protocols (SMTP, POP3, IMAP, MIME), FTP, TELNET. Network Security: Cryptography, Symmetric- key Algorithms: DES, AES, Public-key Algorithms: RSA, Digital Signatures.

BOOKS:

Text Books:

1. Data & Network Communication by Michael A. Miller
2. Data Communications and Networking, B.A. Forouzan, Tata McGraw-Hill.

Reference Books:

1. Deitel&Deitel, Goldberg," Internet and World Wide Web-How to Program", Pearson Education Asia,2001
2. Computer Networks-A. S. Tanenbaum.

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BCA III YEAR

BCA-33-WEB PROGRAMMING

MAX. MARKS: 40 **MIN. PASS MARKS: 13**

Unit-I
Web Technology: Introduction to WWW, web browsers, web servers, HTTP, URL. **HTML:** Introduction, Objective, HTML Command Tags: Text, List, Table, creation of links, inserting graphics, forms. **Cascading style sheets:** Introduction to CSS, creating style sheets, Types of CSS.
Unit-II
A Brief History of PHP, PHP Characteristics, Installing and Configuring PHP on Windows, PHP Language Basics: Lexical Structure, Data Types, Variables, Expressions and Operators, Decision Statements, Flow Control Statements, Embedding PHP in Web Pages. **Strings:** String Constants, Printing Strings, Accessing Individual Characters, String Handling Functions: length, Word count, string position, reverse, replace.
Unit-III
Arrays: Indexed Arrays, Associative Arrays, Identifying Elements of an Array, Storing Data in Arrays, Multidimensional Arrays, extracting multiple values, converting between arrays and variables, Traversing Arrays, Sorting. **Functions:** Calling a Function, Defining a Function, Variable Scope, Function Parameters, Return Values, Variable Functions, Anonymous Functions. **Object Oriented Programming Concepts:** Classes, Objects, Member Functions, Encapsulations, Inheritance, and Polymorphism.(only basic definitions of these topics)
Unit-IV
Form Handling in PHP: Setting Up Web Pages to Communicate with PHP, Handling Text Fields, Text Areas, Check Boxes, Radio Buttons, List Boxes, Password Controls, Hidden Controls, Image Maps. **File Handling**: Working with files and directories, File Open and Read, File Create and Write, Reading and writing Character in file, reading entire file, Rename and Delete File, getting information of files, ownership and permissions.
Unit-V
Database Access : Using PHP to access a database. Introduction to MySql, connectivity with MySql. XML: What is XML? XML document structure, PHP and XML, XML parser, the document object model, the simple XML extension, changing a value with simple XML.
Practicals
Note: As per the syllabus and under guidance of respective faculty every student has to perform minimum 50 lab. exercise covering all units with equal weightage.

BOOKS:

1. Programming PHP by RasmusLerdorf and Kevin Tatroe, O'Reilly Publications
2. Beginning PHP5 by Wrox Publication
3. Mastering PHP : BPB Publication
4. PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications
5. PHP 5.2 The Complete Reference by Steven Holzner, McGraw Hill Edition 2008.

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BCA III YEAR

BCA-34-MANAGEMENT INFORMATION SYSTEM

Max Marks: 40 **Min Marks:13**

UNIT-I:
Management & Organizational Support Systems For Digital Firm: Definition of MIS; Systems approach to MIS: Report writing s/w, MIS and Human factor, Considerations, concept of organizational information sub-system, MIS & problem solving. Case Studies.
UNIT-II:
Information Systems & Business Strategy: Information Management. Who are the users? Manager & Systems, Evolution of Computer based information system (CBIS), Model of CBIS. Information services organization : Trend to End-User computing, justifying the CBIS, Achieving the CBIS, Managing the CBIS, Benefits & Challenges of CBIS implementation. Strategic Information System, Business level & Firm level Strategy, Case Studies.
UNIT-III:
Information Systems In the Enterprise: Systems from Management & Functional perspective & their relationship: Executive Information System, Decision Support System Sales & Marketing Information System, Manufacturing Information System, Human-Resource Information System. Finance & Account Information System. Case Studies.
UNIT-IV:
Information Technology for Competitive Advantage : Firm in its environment, What are the information resources? Who manages the information resources? Strategic planning for information resources. End-User Computing as a strategic issue, Information resource management concept. Case Studies.
UNIT-V:
E-Commerce & International Information System : Introduction to E-Commerce, Business Intelligence. E-Commerce strategy, Electronic Data Interchange, E-commerce methodology, E-commerce technology, Business application of the Internet. Electronic Business success strategies. Managing International Information Systems: IIS architecture, Global business drivers , challenges, strategy: divide, conquer, appease, cooptation, business organization, problems in Implementing global information systems, Computer crime, ethics & social issues.

Text Books:-

1. MIS A Concise Study, S.A. Kelkar, PHI.
2. MIS managing the digital firm, Kenneth C. Laudon& Jane P. Laudon (Pearson Education).
3. ElectronicCommerce: Greenstein, Merylin, Tata Mc.Graw Hill

Reference Books :-

1. MIS, Suresh K. Basandra (Wheelers)
2. Introduction to computer Information System for Business, Mark G. Simkin, S. Chand & Co., 1996.
3. Analysis & Design of Information Systems, James A. Senn. MCGraw-Hill International.

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BCA-III YEAR

BCA-35- COMPUTER GRAPHICS (WITH MULTIMEDIA)

Max. Marks: 40 **Min. Marks: 13**

UNIT – I
A brief background about applications of Computer Graphics. Overview of graphic systems, video display devices, refresh cathode ray tubes, raster and random screen display, color CRT monitors, flat panel displays, LCD's. Design and architecture of raster scan and random scan display systems. A brief introduction to input devices and hardcopy devices. Output primitives, DDA and Bresenham's 2D line drawing algorithms, parallel line algorithms.
UNIT – II
Midpoint circle generating algorithm, Ellipse generating algorithm, Character generation, attributes of output primitive, line and curve attributes, character attributes, Basic Transformation, Composite Transformation
UNIT – III
Clipping operations, Cohen Sutherland line clipping, Liang Barsky line clipping, Nicholl-Lee-Nicholl line clipping, polygon clipping, Sutherland Hodgeman and Weiler-Atherton polygon clipping, text and curve clipping.
UNIT IV
Photoshop-Introduction: Working with image file- creating a new file, opening an existing file, importing andimage, grabbing scanner image, grabbing a digital camera image, adding file information, saving a file, saving to another format, switch between file, closing a file. **Adding contents with tools:** selecting a tool, setting a tools option in option bar, resetting defaults, choosing colors, working with painting and drawing tools. **Working withimage view:** using the zoom tool, changing the view zone.
UNIT – V
Selecting image content: Using the marquee tool, using the lasso tool, selecting pictures with magic wand,selecting by color range, adjusting and removing selection. **Changing a selection:** Deleting, Moving, Copying, Transforming, Modifying, Saving, and loading a selection, undoing a change. **Using positioning tools:** showing and hiding a grid, showing and hiding rulers, using snap and snap to locking guides. **Using layers, masks andpaths:** Working with layer, deleting a layer, setting layer properties, choosing a layer style, arranging layer order,grouping and ungrouping layers, flatter the image.

Text Book:
Computer Graphics by Donald Hearn and M. Pauline Baker, Second Edition,
PHI 1997.Photoshop 6 for Windows by Lisa A. Buckly, Pub.BPB.
Reference Books:
Learn yourself Photoshop by Vishnu Priya Singh and M. Singh Asia Pub.
WEBSITE LINKS:
http://cs.fit.edu/~wds/classes/graphics/History
http://people.csail.mit.edu/fredo/Depiction/1_Introduction/reviewGraphics.pd
f http://www.evl.uic.edu/datsoupi/502/14_mach.pdf
http://www.dgp.toronto.edu/~hertzman/418notes.pdf

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BCA III YEAR

BCA-36-CLOUD COMPUTING CONCEPTS

Max Marks: 40 **Min Marks:13**

UNIT-I:
Introduction: Historical development, Vision of Cloud Computing. Characteristics of Cloud Computing as per NIST, Cloud Computing reference model, Cloud computing environments, cloud services requirements, cloud and dynamic infrastructure, cloud Adoption and rudiments. Overview of cloud applications: EGC Analysis in the cloud Protein structure predication, Gene Expression Data Analysis, Satellite Image Processing, CRM /and ERP, Social Networking.
UNIT-II:
Cloud Computing Architecture: Cloud Reference Model, Types of Clouds, Cloud Interoperability & Standards, Scalability and fault tolerance, Cloud Solutions: Cloud Ecosystem, Cloud Business Process Management, Cloud Service Management, Cloud Offerings: Cloud Analytics, Testing Under Control, Virtual Desktop Infrastructure.
UNIT-III:
Cloud Management & Virtualization Technology: Resiliency, Provisioning, Asset management, Concepts of Map reduce, Cloud Governance, High Availability and Disaster Recovery. Virtualization: Fundamental Concepts of Compute, storage, networking, desktop and Application Virtualization, Virtualization benefits, server Virtualization, Block and file level storage virtualization Hypervisor Management software, Infrastructure Requirements, Virtual LAN(VLAN) and Virtual SAN(VSAN) and their Benefits.
UNIT-IV:
Cloud Security: Cloud Information Security Fundamentals, Cloud Security Services, Design Principles, Secure Cloud Software Requirements, Policy Implementation, Cloud Computing. Security Challenges, Virtualization security Management, Cloud Computing Security Architecture .
UNIT-V:
Market Based Management of Clouds, Federated Clouds/Inter Cloud: Characterization & Definition, Cloud Federation Stack, Third party Cloud Services. Case Study: Google App Engine, Microsoft Azure, Hadoop, Amazon, Aneka

List of Experiments:

1. Installation and configuration of Hadoop/Euceliptus etc.
2. Service deployment & usage over cloud.
3. Management of cloud resources.
4. Using existing cloud characteristics & services models.
5. Cloud Security Management
6. Performance evaluation of services over cloud. Grading System 2013-14

Recommended Text:

1.Buyya, Selvi, “Mastering cloud Computing” TMH Pub
2.KumarSaurabh, “could Computing”, Wiley Pub
3.Krutz, Vines, “cloud Security”, Wiley Pub
4.velte, “Cloud Computing-A Practical Approach”, TMH Pub
5.Socinesky, “Cloud Computing”, Wiley Pub