301 MCA : COMPUTER NETWORKS


UNIT 2 - Physical Layer: Concept of Data Transmission, Transmission Media, Switching techniques, Wireless Transmission, ISDN and ATM.


UNIT 4 - Network Layer: Organization, Virtual Circuits vs Data gram Services, Routing Algorithms, Congestion Control, Network Layer in Internet.

UNIT 5 - Transport Layer: Services & Protocols (TCP and UDP), ATM ALL Protocol, Socket Programming.
Application Layer: Network Security, DNS, SNMP, E-mail, WWW, Network Multimedia Applications.

References:

Data networks, Dimitri Bertsekas & Robert Gallager, PHI.
Data Networks: Concepts, Theory & Practices, Black, PHI.
Computer Networks & Distributed Processing, Martin J., PHI.
302 MCA: OBJECT ORIENTED PROGRAMMING USING C++

UNIT 1-Basic of OOP: Basic Concept of Object Oriented Programming and its advantages/characteristics- Object, Classes, Inheritance, Reusability, Polymorphism & Overloading; A Comparative Study of C & C++; Programming Concepts errors- Compilation error, Linker Error, run-time Error, Conceptual errors; Debugging.

UNIT 2-Basic of C++: Variable & Constants; Data Types; Expression & Statements; cin & cout; Qualifier & Manipulators; Operators- their priority & associativity; Type Conversion; Casting; Loops & Decisions; Structures; Functions-inline Functions, Parameter Passing.

UNIT 3-OO Programming in C++: Details of-Objects and Classes; Constructor, Destructor, Function overloading, this pointer, Operator overloading, Inheritance,types of inheritance, Virtual Base Class.

UNIT 4-Miscellaneous Features: Friend Function, Friend Classes,Nested Classes, Static Members. Arrays in C++: arrays as data members, arrays of objects ; Dynamic Memory Allocation Operators: new and delete.

UNIT 5- Pointers in C++: pointer to objects, array of pointers to objects, pointers to derived classes, pointers to class members,Virtual Function, Pure Virtual Function, File & Stream Classes, Command Line Arguments; Templates. Introduction to UML: UML concepts, object-oriented paradigm and visual modeling, UML diagrams, UML specifications, object model, object oriented design, identifying classes and object, object diagrams.

References :
2. " Programming with C++" By John Hubbard
3. " The C++ Programming Language" By Stroustrup
4. " C++ Inside Outside" Byeeckel
6. Hans Erit Eriksson UML 2 toolkit Wiley
303 MCA: UNIX & Shell Scripting

UNIT 1: Overview UNIX & LINUX

Structure of UNIX, evolution of UNIX, Kernel and shell, features of UNIX, UNIX: Installation and booting.

UNIT 2: File System

Unix file system, types of Unix files, login directory, Inode-User Identification, file system hierarchy, working directories & pathnames, pwd. Basic command for file manipulation like: Is, cat, cp, rm, mv, ln, touch, cd, mkdir, rmdir, file access permission, types of permissions, determining & changing permission, umask, chown, chgrp, newgroup, changing your password: passwd.

UNIT 3: Advanced features

Multi user communication & Scheduling: who, write, msg, wall, mail, at, lp, lpstat, pr, news, motd, Multiple commands on command line, redirecting: standard output to a file, standard input from a file and both, pipelines and filter: head, tail, paste, sort, uniq, grep, egrep, fgrep, awk, nl

The Process: running a process in the background, process status, terminating a process, delay process. General purpose utilities: more, file, wc, od, cal, banner, cmp, tty, sty, sty, date etc.


UNIT 4: Introduction To Shell Script:

Unix editors: vi, ex, Bourn Shell, C Shell, advance features of shell. Shell variable — system shell variables, local & global variables. Shell meta characters and environment, if and case statements, for, while and until loops. Shell Programming.

UNIT 5: Introduction to Linux:

History and features of Linux, Linux structure, Various flavors of Linux, Installing Linux.

System Administration: Understanding System Administration, startup & shutting down, Managing user accounts, backing up data, system security.

Reference:

1. UNIX System — Rebecca Thomas (McGraw- Hill)
2. Advanced UNIX — Stephen Prata (BPB Publication)
3. UNIX System — Sumitabha Das
4. Operating System by PHI- Milan koewick
UNIT 1 - Errors in numerical approximation: Sources of errors, machine error, Relative error, Percentage error, round off in different number system, Interpolation: Gauss Backward, Gauss Forward, Lagranges interpolation, Newton divided Difference, Inverse interpolation.

UNIT 2 - Iterative methods: Zeros of a single transcendental equation and zeros of polynomial using bisections, false position Newton-Raphson etc. convergence of solutions.


STATISTICAL ANALYSIS:

UNIT 4 - Regression Analysis: Least Square fitting: Polynomial and curve fitting. Linear and nonlinear regression. Correlation- Pearsons coefficient of correlation

UNIT 5 -
Probability Theory: Sample Space events; sampling theory, conditional probability Bayes formulas, Additive law of probability, Compound events, Use of Binomial Theorem.

REFERENCES:

1. "Basic Statistical Computing" by D. Cook A. H. Lee & T.S. Lee
2. "Statistical Computer Method Basic" by J. D. Lee & T.D. Lee
3. "Statistical Analysis a Computer Oriented Approach" by A. Affi
5. "System Simulation" by Geoffrey Gordon
6. "Computer Based numerical Algorithms" by E.V.Krishnamurthy & S.K. Sen
7. "Computer Oriented numerical Methods" by v. Rajaraman
8. " Linear Algebra " by G. Hadley.
305MCA : ORGANIZATIONAL BEHAVIOUR

UNIT 1 - Introduction to Organizations and Individuals. What is an organization. Components of organization, nature and variety of organizations (in terms of objectives, Structure etc.) models of analyzing organizational phenomena.

UNIT 2 - Organizational and business variables, Organizations in the Indian context, Institutions and structures. Basic roles in an organization, etc. perception attitudes. Motives (achievement, poser and affiliation).

UNIT 3 - Commitment: Value creativity and other personality factors. Profile of a manager and an entrepreneur.

Interpersonal and Group Processes- Interpersonal trust, understanding the other person from his/her point of view. Interpersonal communication. Listarang, feedback, counseling. Transactional analysis. Self-functioning. Team decision-making team conflict resolution. Team problem solving.

UNIT 4 - Organizational Structure and Integrating Interpersonal and Group Dynamics-elements of structure. Functions of structure, determinants of structure, disfunctionality of structures. Structure - technology. Environment- people relationships.

UNIT 5 - Principles Underlying design of organization; organizational change. Integrating cases (s).

Case method and lectures should be supplemented with a variety of other methodologies such as feedback on questionnaires and tests, role plays and behaviour simulation exercise.

References: