MCSE-101 ADVANCED COMPUTATIONAL MATHEMATICS

UNIT 1
Linear Algebra: Linear transformation, vector spaces, hash function, Hermite polynomial, Heavisite's unit function and error function. Elementary concepts of Modular mathematics

UNIT 2
Solution of Partial Differential Equation (PDE) by separation of variable method, numerical solution of PDE (Laplace, Poisson’s, Parabolic) using finite difference methods, Elementary properties of FT, DFT, WFT, Wavelet transform, Haar transform.

UNIT 3
Probability, compound probability and discrete random variable. Binomial, Normal and Poisson’s distributions, Sampling distribution, elementary concept of estimation and theory of hypothesis, recurred relations.

UNIT 4
Stochastic process, Markov process transition probability transition probability matrix, just and higher order Markov process, Application of Eigen value problems in Markov Process, Markov chain. Queuing system, transient and steady state, traffic intensity, distribution queuing system, concepts of queuing models (M/M/1: Infinity/Infinity/ FC FS), (M/M/1: N/ Infinity/ FC FS), (M/M/S: Infinity/ Infinity/ FC FS)

UNIT 5
Operations of fuzzy sets, fuzzy arithmetic & relations, fuzzy relation equations, fuzzy logics. MATLAB introduction, programming in MATLAB scripts, functions and their application.

Reference Books:
3. Applied Numerical Methods with MATLAB by Steven C Chapra, TMH.
4. Advance Engg Mathematics, O' Neil, Cengage (Thomson)
5. Introductory Methods of Numerical Analysis by S.S. Shastry,
6. Introduction of Numerical Analysis by Forberg
8. Numerical Mathematical Analysis By James B. Scarborough
9. Fourier Transforms by J. N. Sheddon
10. Fuzzy Logic in Engineering by T. J. Ross
11. Fuzzy Sets Theory & its Applications by H. J. Zimmersons
UNIT 1
INTRODUCTION: Basic concepts of OOPs – Templates – Algorithm Analysis – ADT - List (Singly, Doubly and Circular) Implementation - Array, Pointer, Cursor Implementation

UNIT 2

UNIT 3

UNIT 4
MEMORY MANAGEMENT ; Issues - Managing Equal Sized Blocks - Garbage Collection Algorithms for Equal Sized Blocks - Storage Allocation for Objects with Mixed Sizes - Buddy Systems - Storage Compaction

UNIT 5

Reference Books :
3. Drozdek, Data Structures and algorithm in Jawa, Cengage (Thomson)
4. Gilberg, Data structures Using C++, Cengage
3. Horowitz, Sahni, Rajasekaran, “Computer Algorithms”, Galgotia,
UNIT 1
Flynn's and Handler's Classification of parallel computing structures. Pipelined and Vector Processors.

UNIT 2
Data and control hazards and method to resolve them. SIMD multiprocessor structures. I

UNIT 3
Interconnection networks. Parallel Algorithms for array processors, Search algorithms, MIMD multiprocessor systems,

UNIT 4
Scheduling and load balancing in multiprocessor systems, Multiprocessing control and algorithms.

Reference Books:
1. Advance Computer Architecture, parthasarthy, Cengage (Thomson)
3. Computer Architecture and Parallel Processing- Hwang And Briggs, TMH.
MCSE-104 OBJECT ORIENTED TECHNOLOGY

UNIT 1
Overview of object oriented concepts: Need for object oriented programming, characterization of object oriented languages.

Unit 2
Object oriented Design: object structure concepts, methodology for object oriented design (Booch, and Chen and Chen), Design modelling, system design life cycle.

Unit 3
Object oriented programming: An overview of C++ programming, loops and decisions, structures and functions, objects and classes, Array and pointers, Inheritance, virtual function, files and stream.

Unit 4

Unit 5
Distributed object oriented systems: Object management group, CORBA.

Reference Books:
1. Object Oriented Analysis and Design, Satzinger, Cengage (Thomson)
3. OOP in C++ by Lafore, Galgotia Pub.
4. The C++ Programming Language by Stroustrup B, Addison Wesely
5. Introduction to OOP by Witt KV, Galgotia Pub.
7. OOP by Blaschek G, Springer Verlag
8. An Introduction to Jawa Programming and OOAD, Johnson, Cengage
MCSE-105 ADVANCED COMPUTER NETWORKING

UNIT 1
Review of Networking and O.S. fundamentals, ISO-OSI Model, different layers and their functions, LAN, MAN, WAN, Communication media & principles IEEE standards etc.

UNIT 2
Internetworking with TCP/IP, Basic concepts, Principles, Protocols and Architecture, Address handling Internet protocols and protocol layering. DNS, Applications: TELNET, RLOGIN, FTP, TFTP, NFS, SMTP, POPL, IMAP, MIME, HTTP, STTP, DHCP, VOIP, SNMP.

UNIT 3

UNIT 4
VPN addressing and routing, VPN Host management, ATM Concepts, Services Architecture, Equipments and Implementation

UNIT 5
Introduction to wireless transmission and medium access control, wireless LAN: IEEE 802.11, Hipher LAN, Bluetooth Mobile Network and Transport layer, WAP GSM and CDMA: Network architecture and management

Reference Books:
2. Internetworking with TCP/IP: Comer.
4. Data Communications, Stalling.
5. Mobile Communication: Schiller, Pearson Education
6. Computer Communications and network Technology, Gallo, Cengage (Thomson)
8. ATM Network: Kasara, TMH
9. TCP/IP protocol Suite, Forouzan , TMH

References:
1. Rambaugh , Object Oriented Modeling and Design with UML , Pearson Edu.
2. Simon Bennett, Steve McRobb and Ray Farmer, Object Oriented system Analysis and Design Using UML, TMH
3. Docherty , Object Oriented Analysis & Design with UML , Wiley India