DATA STRUCTURES AND ALGORITHMS
MCS201

Unit-I

Data Representation: Introduction. Linear List. Formula Based Representation. Linked Indirecting Addressing. Simulating Pointers. A Comparison. Applications. Convex Hull. Arrays And Matrices: Arrays, Matrices, Special Matrices- Sparse Matrices.

Unit-II

Stacks: The Abstract Data Type, Derived Class and Inheritance, Formula Based Representation, Linked Representation, Applications. Queues: The Abstract Data Type, Formula Based Representation, Linked Representation, Application. Binary and Other Trees: Trees, Binary Trees, Properties, Representation, Common Binary Tree Operation, Binary Tree Traversal, the ADT Binary Tree, The Class Binary Tree, ADT And Class Extensions, Applications.

Unit-III

Priority Queues: Introduction, Linear List, Applications. Tournament Trees: Introduction, The ADT Winner Tree, The Class Winner Tree, Loser Tree Applications. Search 'frees: Binary Search Tree, AVL Trees, Red-Black Tree, B-Tree Applications.

Unit-IV

Graphs: Definitions, Applications, Properties, The ADTs Graph and Digraph, Representation of Network, Class Definition: Graph lterators, Language Features, Graph Search Methods, Applications. The Greedy Method: Optimization Problem, The Greedy Method, Applications. Divide And Conquer: The Method, Application.

Unit-V

Dynamic Programming: The Method, Applications. Backtracking : The Method, Applications. Branch and Bound: The Method, Applications.

OPERATING SYSTEM
MCS202

Unit — I

Overview of the operating system: Evaluation of operating system. Classification of Operating System : Batch OS, Multiprogramming, Time Sharing, Real Time, Combination, Distributed OS .Different Views Of Operating System: Operating System as a Processor Manager, Memory manager, File Manager, Device Manager etc. System Services. System Calls. Hierarchical & Extended Machine View. Design And Implementation Of OS .Functional Requirements. Implementation.

Unit – II

File management: file concept, file types. File based system, disk based system, blocking file operations, creating, writing, reading ,deleting, file access methods, file allocation methods-contiguous, dynamic, linked and indexed allocation performance of allocation methods under various size of files directory system single level two level structured, file protection mechanism layered file system.

Unit – III

Processor management process views, structure, state, process, control block multiprogramming levels of schedulers and scheduling algorithms, evaluation of various scheduling algorithms, multiple processor scheduling, process synchronization, synchronization mechanism, virtual processors, interrupt mechanism, future trends in processor management.

Unit – IV

Memory management: memory management schemes, contiguous allocation, single & partitioned (static & dynamic) segmentation, non-contiguous allocation, paging, virtual memory concepts, demand paging, performing page fault, page replacement algorithms, segmentation and paging ,future trends in memory management, large main memories, storage hierarchies, hardware support of memory management.

Unit – V

Technique for device management, dedicated devices, shared devices, virtual devices, sequential access, direct access devices, channel and control unit, independent devices, operation, buffering, multiple paths, block multiplexing ,device allocation consideration, i/o traffic controller, i/o scheduler, i/o device handlers, virtual devices, spooling system.

COMPUTER NETWORKS WITH WINDOWS NT
MCS203

Unit — I

Analog & digital signal. electronic spectrum, asynchronous & synchronous transmission. Ideal channel , band rate, baseband , broadband channel, multiplexer FDM. TDM , STDM, carrier modulation. AM, FM, PCM. PWM, SWM, encoding schemes, the needs and importance of networking, type of networks, server based , peer based, hybrid, layered architecture, LAN topology, network adopted card, logical topology, modem.

Unit – II

Switching technique, message switching. circuit switching. packet switching. virtual circuit. transmission media. OSI reference model. IEEE standards. 802.3, 802.4, 802.5 ALOHA, SLOTTED ALLOHA, CSMA. CSMA/CD Bitmap CCITTX.25, CCITT x11 ,token ring, token bus.

Unit – III

Fast Ethernet, FDDI token ring, wireless LAN, ATM network, principles of internetworking ,internet working devices, bridge, routers ,gateways, repeater, routing algorithms, distance vector routing, shortest path routing, broadcast routing, multicast routing, ICP/IP protocol, IPV6 addressing, congestion control, traffic shaping.

Unit - IV

TELNET, FTP, SMTP, MINE,SNMP,UDP,URL(Unifonn Resource Locater) THTTP source routing bridge, transport bridge, ISDN channel, ISDN services, base band ISDN, broadband ISDN. Different switches, PBX network, network securing application of cryptography to security, data encryption transposition cipher, substitution cipher, PSA algorithms.

Unit – V

Introduction to windows NT, various features, differences with other windows environment and other OS, windows NT workstations versus server. Kernel and its subsystems. Security Models: system level restrictions, server application security, domain group access.

PROGRAMMING IN JAVA
MCS204

Unit — I
History and design features of JAVA. how Java works. basics of JAVA. Application and Applets. using the tools in JDK, javadoc, Java, jdb etc. Applets, Programming - Creating and executing Java applets. inserting applets in a web page. Java security.

Unit – II
Switching technique, message switching. circuit switching. packet switching. virtual circuit. transmission media. OSI reference model. IEEE standards. 802.3, 802.4, 802.5 ALOHA, SLOTTED ALLOHA, CSMA. CSMA/CD Bitmap CCITTX.25, CCITT x11 ,token ring, token bus. JAVA Language- keywords. Constants ,Variables and Data types. Operators and statements: Break, continue, and return. Array. String and String Buffer Classes, Wrapper Classes. Classes, Objects and Methods: Defining a class, adding variables and methods, creating Objects, constructors, class inheritance.

Unit – III
Inheritance ,basic types, using super, multi level hierarchy, abstract and final classes, object class, packages and interfaces, packages. Exception Handling, Fundamentals, exception types, uncaught exceptions, throws, throw, try -catch, final, built in exceptions, creating your own exceptions.

Unit - IV
Multithreading Fundamentals, Java Thread model: priorities, synchronization, messaging, thread class, Runnable interface, Interthread communication, suspending, resuming and stoping threads. Input/Output- Basics - Streams, Byte and Character, Streams, predefined streams, Reading and writing from console and files using standard Java Pkkages Java Package (lang,util, io) Networking-Basics, networking classes and interfaces, using java.net package, doing TCP/IP and Datagram Programming.

Unit – V
AWT Classes, Event Handling and swing classes, AWT Programming, Working with windows, Graphics and text, Using AWT controls, Layout managers and menus, Handling image, animation, sound and video. Event Handling-Different mechanism, the Delegation Event Model, Event Classes, Event Listener interfaces, Adapter and Inner Classes. Java swing applet, icons and labels, text fields, buttons, combo boxes, tabbed and scroll panes, trees, tables.