BS401 : Operating system

Introduction: Definition, Design Goals, Evolution; Concept of User, job and Resources; Batch processing, Multi-programming, Time sharing; Structure and Functions of Operating System.

Process Management: Process states, State Transitions, Process Control Structure, Context Switching, Process Scheduling, Threads.

Memory Management: Address Binding, Dynamic Loading and Linking Concepts, Logical and Physical Addresses, Contiguous Allocation, Fragmentation, Paging, Segmentation, Combined Systems, Virtual Memory, Demand Paging, Page fault, Page replacement algorithms, Global Vs Local Allocation, Thrashing, Working Set Model, Paging.

Concurrent Processes: Process Interaction, Shared Data and Critical Section, Mutual Exclusion, Busy form of waiting, Lock and unlock primitives, Synchronization, Classical Problems of Synchronization, Semaphores, Monitors, Conditional Critical Regions, System Deadlock, Wait for Graph, Deadlock Handling Techniques: Prevention, Avoidance, Detection and Recovery.

File and Secondary Storage Management: File Attributes, File Types, File Access Methods, Directory Structure, File System Organization and Mounting, Allocation Methods, Free Space management; Disk Structure, Logical and Physical View, Disk Head Scheduling, Formatting, Swap Management. Protection & Security.

References:

1. Silberschatz and Galvin, Operating System Concepts 6/ed, Addison Wesley.
2. William Stalling, Operating Systems: Internals and Design Principles 5/ed, PHI.
3. Tanenbaum, Modern operating Systems, PHI.
4. J Bach, The Design of UNIX Operating System, Pearson Education.
5. Vijay Mukhi, The C Odessy, BPB.
6. Peterson and Silberschatz, Operating System Concepts, Addison Wesley.
7. P. B. Hansen, Operating System Principles, PHI.
8. K. Christian, The UNIX Operating System, John Wiley.
9. A. N. Haberman, Introduction to Operating System Design, Galgotia.

BS402 : Advance RDBMS

Data Processing Systems. Transaction Processing and Concepts: Transaction system, Testing of seralizability, Seralizability of schedules, conflict and view seralizable schedule, recoverability, Recovery form transaction failures, deadlock handling .

File processing system. File Management system. Components of RDBMS. Database Architecture.
Object Oriented Databases. Distributed Databases. Client/server database. Data Dictionary. Database models. Normalization. The Database Administration. Database Manager responsibilities.
Monitoring Database performance. Database Machine overview.
Designing RDBMS for organization. Object modeling. Perspectives of Data Modelling.
Evolving the logical model. Transformation from Logical to Phical model.

Concurrency Control Techniques: Concurrency control, locking Techniques for concurrency control. CODD's 12 rules for a fully relational DBMS.

Data Integrity. Redundancy. Primary and Foreign keys.

Object database management. Database design and choosing the database server.
SQL and MySql. Database access and ODBC.

Middleware: Kinds of middleware. Sockets-talking to database, virtual database engine defined, web based middleware, Microsoft JET engine,

Database security and Recovery. Data Mining and Warehouse.

References:

1. Adv. DBMS by V.K. Jain, Cyber Tech Publication, 5A/13 Ansari Road, Daryagang, N.Delhi.-110002
2. Date C.J. "An Introduction to Database System". Addision Wesley
3. Korth, Silbertz, Sudarshan, "Database Concepts" McGraw Hill
4. Elmasri, Navathe, "Fundamentals of Database Systems" Addision Wesley
5. Paul Beynon Davis, "Database Systems" Palgrave Macmillan
6. Bipin C. Desai, "An introduction to Database Systems", Galgotia Pub.

BS403 : Management Information System

Fundamentals of Information Systems, Systems approach to problem solving, Developing information system solutions, Levels of MIS (Top, Middle, Lower).

Corporate Databases & Database Management, Data Organization, Data models, Data Security & Information quality.

Transaction Processing Systems, Executive Information Systems, Decision Support Systems, Expert Systems, Information Systems in Marketing, Manufacturing, HRM, Accounting and Finance.

Information Resource Management, Planning Implementing & Controlling Information Systems, Computer Crime, Ethics & Society.

References:

1. Brein James O. – Management Information Systems
2. Murdick & Ross – Information Systems for Modern Management
3. Parker C.S. – Management Information Systems – Strategy and Action.
4. Aktas A.Ziya – Structured Analysis and Design of Information Systems.

BS404 : Multimedia Technology and Application

Evolution of Multimedia and its objects, Scope of multimedia in business & work, production and planning of Multimedia applications. Multimedia hardware, Memory of Storage Devices, Communication Devices, Multimedia Software, Presentation and object generation tools, Video, sound, Image capturing Authoring Tools, Card & Page Based Authoring Tools.

Production and Planning of Multimedia building blocks, Text, sound (MIDI), Digital Audio, Audio File Formats, MIDI under Windows environment, Audio & Video Capture.

Macromedia products, Basic drawing techniques, Advance animation techniques, Creating Multi layer combining interactivity and multiple scenes, Creating transparency effects using text in Flash, Flash animation.

Digital Audio Concepts, Sampling variables, Loss Less compression, of sound, Lossy compression & Silence compression.

Multimedia monitor bitmaps, Vector drawing , Lossy graphic compression, Image file formatic animations, Image standards, JPEG compression, Zig Zag coding. Video representation, colors, video compression, MPEG standards, MHEG standard, recent development in multimedia. Multimedia Application Planning, Costing, Proposal preparation, and Financing-Case study of a typical industry.

References:

1. Andreas Halzinger, "Multimedia Basics" Vol-I to VOL-III Firewall Media
2. Tay Vaughan, "Multimedia Making It work" Tata McGraw Hill
3. Buford, "Multimedia Systems" Addison Wesley