

SYLLABUS OF INFORMATION TECHNOLOGY

SIXTH SEM SYLLABUS

6IT 35

MICROPROCESSORS

Unit-I:

8085 microprocessor, architecture, instruction set, addressing modes, memory organization & interfacing.

Unit-II:

Assembly language programming using 8085, 8085 interrupts, 8255 PPI and its organization.

Unit-III:

8254 programmable timer, organization & interfacing with 8085, 8279 keyboard & display, controller, organization & interfacing with 8085, analog & digital interfacing using 8255, keyboard/display interfacing using 8255 & 8279.

Unit-IV:

Serial data transmission, USART 8251 & its organization & interfacing with 8085, 8259 interrupt controller, its organization & interfacing with 8085, DMA controller 8257 & its organization.

Unit -V:

8086/8088 microprocessor, architecture, instruction set, addressing modes, simple programs, memory organization and interfacing.

TEXTBOOKS:

1. Microprocessor Architecture Programming ~ Application, with 8080/8085 by Ramesh S. Gaonkar.
2. 16 bit Microprocessor by Triebel and A. Singh.
3. 16 bit microprocessor by Liu and Gibson.

REFERENCE BOOKS:

1. Microprocessor and Digital Systems by D.V.Hall.

PRATECALS based on above syllabus

Unit-I:

Understanding user interface, basic considerations in designing a proper interface, consistency, robustness of interface, user-friendliness, feedback, providing default values.

Unit-II:

Identifying user tasks, methods of accomplishing tasks, necessity of performing tasks, event-driven programming, traditional programming, advantages of event-driven interfaces, types of events in windows.

Unit-III: Menus, file menu, edit menu, menu structures, examples, undo and redo features, graying a menu entry, TEXT buttons, graphic buttons, examples.

Unit-IV: Principles of good dialog box design, rules of thumb dialog box design, kinds of dialog boxes, handling controls and radio buttons, using radio buttons, check boxes.

Unit-V: ;Use of list boxes and combo boxes, rules of-thumb in setting up list boxes and combo boxes, varieties of list and combo boxes, examples

TEST BOOKS:

- 1.Designing GUI application by Alex Leavens, BPB Publications, 1995.
- 2."VISUAL BASIC 6.0" by Evangelos Petrutsos(BPB Pub First Ed.1998).

Practicals based on above syllabus

Unit-I:

Introduction to database systems :overview, the systems Vrs DBMS, various data models, levels of abstraction, structures of DBMS, relational model, relations and integrity constraints, relational algebra and calculus~
SQL-basic, SQL query, nested queries, aggregate operators, Embedded SQL, dynamic SQL, security, views.

Unit-II:

File organization: storage media, buffer management, record and page formats, file organizations, various kinds of indexes and external sorting.

Unit-III:

Query optimization and evaluation introduction to query processing, selection Operation projection operation, join operation, set operation and aggregate operation, relational query optimization, translating SQL queries. Mho algebra, estimating the cost, relational algebra equivalence.

Unit-IV:.

Database design : overview of database design, ER model, features of ER model, conceptual design using ER model, scheme refinement and normal forms, scheme refinement, use of decompositions, functional dependencies, normal forms, multi-valued dependencies.

Unit-V:

Concurrency control and recovery concepts of transaction, transactions and schedules. lock based concurrency control, lock management, specialized locking techniques, concurrency control without locking, crash recovery, introduction to crash recovery, log recovery, check pointing, media recovery.

TEXT BOOKS

1. Database Management Systems by RaghuRama Krishnan, MGH .1998,
2. Database Systems Concepts by Henry Korth and Others.

REFERENCE BOOKS:

- 1.Database Management and Design by G.W. Hansen and J.V.Pansen, PHI, 1999.
2. An Introduction to Database System by C.Desai, Galgotia Pub.,1998.

PRACTICALS based on above syllabus using ORACLE.

Unit-I:

Data types. Variables, arrays. Integers, floating point types, characters, Boolean, literal, Operators: arithmetic operators, bit wise operators, relational, Boolean, logical, assignment, The?, Operators precedence, use of parentheses.

Control statements: IF, switch, DO-WHILE, WHILE, FOR, Nested loop, break, continue, return.

Classes: fundamentals of classes, declaring objects, assigning objects, reference variables, methods, constructor, variable handling and garbage collection.

Methods and classes: Overloading methods, using objects as parameters, arguments passing, returning objects. Recursion, access control, understanding static, introducing final, nested inner classes, storage classes, command line arguments.

Unit-II:

Packages and interface : Packages, access protection, importing packages, interfaces.

Exception handling : Fundamentals exception types, uncaught exception. Try-catch, displaying description of an exception, multiple catch clauses, nested try statements. throw, throws, finally, built in exceptions, creating own exception subclasses.

Multithreaded programming : JAVA thread model, thread priorities, synchronization messaging, the thread class, runnable interface, creating thread, creating, multiple thread. using isAlive(), join(), thread priority, synchronization, interthread communication, suspending resuming stopping threads, Using multithreading.

Unit-III:

I/O Applets: I/O stream, bytes stream,, character stream, pre-defined streams, reading console input reading character, reading string, writing console output, the Print Write class, reading and writing files, applets fundamentals, transient and volatile modifiers, using instance of strictfp, native method.

Unit-IV:

String Handling: string constructor, special string operator, character extraction, string comparison, searching string, modifying a string, data conversion using value Of (), changing ease of Characters within a string, string buffer.

Unit-V:

Networking: networking basics & socket overview, client/server, reserved socket, proxy server, internet addressing, networking classes and interfaces, factory methods and instance method TCP/IP, client socket, URL, URL connections, TCP/IP servers sockets , datagrams,

TEXTBOOKS:

1.The Complete Reference- JAVA 2- 3rd Edition ., by Patrick Naughton, TMH Publ.

1.

PRACTICALS based on above syllabus.

Unit-I:

Software and software engineering. The importance of software, software-software myths, software engineering paradigms, generic view of software egg, software metrics, measures and metrics, estimation, risk analysis, scheduling, size oriented metrics; function oriented metrics, metrics of software quality.

Unit-II:

Software• project estimation and planning, decomposition techniques, LOC and FP estimation, effect estimation, risk analysis, identification, projection, assessment, management and monitoring, software reengineering, requirement analysis, tasks, analyst, software prototyping, specification principles, representation and the software requirements specification.

Unit-III:

Object oriented analysis and data modeling object oriented concepts, identifying objects, specifying attributes, defining operations, inter object communication finalizing object definition, object oriented analysis modeling. data modeling, data objects, attributes and relationships entity relationship diagrams, alternative analysis techniques, requirement analysis methods, data structure oriented methods, data structured system development warner diagrams and the DSSD approach, Jackson system development.

Unit-IV:

Software design fundamentals, The design process, design fundamentals, effective modular, design dataflow oriented design, transform analysis, transaction analysis, design heuristics, object oriented design. object oriented design concepts, object oriented design methods. Refining operations, program components & interfaces, implementation detail design, User interface design, human factors, human computer interface design, interface-design guidelines, interface standards.

Unit-V:

Software quality assurance, software quality factors quality assurance, quality metrics, Halstead's S/W science, software testing techniques, S/W testing fundamentals; White box testing, black box-testing, validation testing, system testing, debugging software maintenance maintainability, maintenance tasks, reverse engineering and re-engineering.

TEXTBOOK:

1. Software Engineering by Roger S. Pressman, McGraw Hill, Second Ed.
2. Software Engineering by D.Bell, I. Morrey- PHI Pub.

Unit-I:

Introduction What's an operating system, multiprogramming, time sharing real time systems, multiprocessor system, operating system services: Types of the services, the user view, the operating system view. File System: File concept, file support, access methods, allocation methods, directory system, file protection, implementation issues.

Unit-II:

CPU Scheduling: Review of multiprogramming, concept, scheduling concept, scheduling, algorithms, algorithm evaluation, multiple processor scheduling. Disk and drum scheduling Physical characteristics, first come first serve scheduling shortest seek tune first scheduling, SCAN, selecting a disk scheduling algorithm, sector queuing.

Unit-III:

Memory Management: Preliminaries: Bare machine, resident monitor, swapping. Multiple partition, paging, segmentations, combined systems
Virtual Memory: Overlays, demand-paging performance of demand paging page replacement, virtual memory concepts, page replacement algorithms. Allocation algorithm, thrashing, other considerations.

Unit-IV:

Deadlocks. : The deadlock problem, deadlock characterization, deadlock presentation deadlock avoidance, combined approach to deadlock handling Concurrent Processes: Precedence graph, specification, review of process concept, hierarchy of process, the critical section problem, semaphores classical process coordination problem, interprocess communication

Unit-V:

Protection: goal of protection, mechanisms & policies, domain of protection, access matrix, implementation of access matrix, dynamic protection structures, revocation, Existing systems, and language based protection, protection problems security

TEXT BOOKS:

1. Operating system concepts by J L Peterson & Siliberschatz

REFERENCE BOOKS:

1. Operating system by Concept & Design by Milan Milenkovic.
2. Operating systems by Madnick & Donovan.
3. An introduction to Operating System by JIM. Dietel.