

UNIT I**Introduction**

Introduction to COA, Basic Computer Model and different units of Computer, Basic Working Principle of a Computer **Number System Representation:** Representation of Decimal, Binary, Octal and Hexadecimal Number; Conversion of Numbers, Representation of Unsigned & Sign integer, Representation of real number, Representation of character.

UNIT II**Arithmetic and Logic Unit**

Logic Gates: AND, OR, NOT, NAND, NOR, XOR, Exclusive, NOR gates **Boolean algebra:** Introduction, Explanation of Boolean function, Describe truth table, Simplified Boolean function using postulates and draw logical diagram of simplified function, Simplified Boolean function using karnaugh map method. **Sequential And Combinational Circuits:** Introduction to combinational circuit and sequential circuit, half adder, full adder, multiplexer, demultiplexer, encoder, decoder

UNIT III**Memory**

Concept of Main Memory, Introduction to Flip Flop and explain SR, Clocked SR, D, JK, T flip flops, Cache Memory, Operations of cache memory, Mapping functions, Replacement algorithms/policy, Memory Management, Virtual Memory, Paging, Allocation of frames, logical and physical address, address translation, address translation process

UNIT IV**Central Processing Unit**

Introduction of CPU, Major component of CPU, CPU categories RISC and CISC, Instruction Pipeline, execution of complete instructions, design of control unit, hardwired control, control signals, Run signals, PLA, concept of Multi-Processor / Parallel Processing

UNIT V**Input-Output Organization**

Concept of input output interface, Programmed Control I/O, Interrupt Control I/O, Direct Memory Access Control I/O, I/O buses, Synchronous bus, Asynchronous bus

Reference Books

1. Computer System Architecture – By Morris Mano (PHI)
2. Digital Logic And Computer Design – By Morris Mano
3. Digital Computer Electronics – By Malvino And Leach