

CS- 402 – Computer System Organization

Unit I

Computer Basics and CPU: Von Newman model, various subsystems, CPU, Memory, I/O, System Bus, CPU and Memory registers, Program Counter, Accumulator, Instruction register, Micro operations, Register Transfer Language, Instruction Fetch, decode and execution, data movement and manipulation, Instruction formats and addressing modes of basic computer. 8085 microprocessor organization

Unit-II

Control Unit Organization: Hardwired control unit, Micro and nano programmed control unit, Control Memory, Address Sequencing, Micro Instruction formats, Micro program sequencer, Microprogramming, Arithmetic and Logic Unit: Arithmetic Processor, Addition, subtraction, multiplication and division, Floating point and decimal arithmetic and arithmetic units, design of arithmetic unit.

Unit-III

Input Output Organization: Modes of data transfer – program controlled, interrupt driven and direct memory access, Interrupt structures, I/O Interface, Asynchronous data transfer, I/O processor, 8085 I/O structure, 8085 instruction set and basic programming. Data transfer – Serial / parallel, synchronous/asynchronous, simplex/half duplex and full duplex.

Unit-IV

Memory organization: Memory Maps, Memory Hierarchy, Cache Memory - Organization and mappings. Associative memory, Virtual memory, Memory Management Hardware.

Unit V Multiprocessors: Pipeline and Vector processing, Instruction and arithmetic pipelines, Vector and array processors, Interconnection structure and inter-processor communication.

References:

1. Morris Mano: Computer System Architecture, PHI.
2. Tanenbaum: Structured Computer Organization, Pearson Education
3. J P Hayes, Computer Architecture and Organisations, Mc- Graw Hills, New Delhi
4. Gaonkar: Microprocessor Architecture, Programming, Applications with 8085; Penram Int.
5. William Stallings: Computer Organization and Architecture, PHI
6. ISRD group; Computer orgOrganization; TMH
7. Carter; Computer Architecture (Schaum); TMH
8. Carl Hamacher: Computer Organization, TMH