Video chapters

Chapter-1 (Introduction): Boolean Algebra, Types of Computer, Functional units of digital system and their interconnections, buses, bus architecture, types of buses and bus arbitration. Register, bus and memory transfer. Processor organization, general registers organization, stack organization and addressing modes.

Chapter-2 (Arithmetic and logic unit) : Look ahead carries adders. Multiplication: Signed operand multiplication, Booth's algorithm and array multiplier. Division and logic operations. Floating point arithmetic operation, Arithmetic & logic unit design. IEEE Standard for Floating Point Numbers

Chapter-3 (Control Unit) : Instruction types, formats, instruction cycles and sub cycles (fetch and execute etc), micro-operations, execution of a complete instruction. Program Control, Reduced Instruction Set Computer,. Hardwire and micro programmed control: micro programme sequencing, concept of horizontal and vertical microprogramming.

Chapter-4 (Memory) : Basic concept and hierarchy, semiconductor RAM **memories**, 2D & 2 1/2D memory organization. ROM memories. Cache memories: concept and design issues & performance, address mapping and replacement Auxiliary memories: magnetic disk, magnetic tape and optical disks Virtual memory: concept implementation.

Chapter-5 (Input / Output) : Peripheral devices, 1/0 interface, 1/0 ports, Interrupts: interrupt hardware, types of interrupts and exceptions. Modes of Data Transfer: Programmed 1/0, interrupt initiated 1/0 and Direct Memory Access., 1/0 channels and processors. Serial Communication: Synchronous & asynchronous communication, standard communication interfaces.

Chapter-6 (Pipelining): Uniprocessing, Multiprocessing, Pipelining, Speed UP, Structural hazards, Control hazards, Data hazards, Operand Forwarding.