COMPUTER ORGANIZATION

Contents Lecture No

Information Representation and Codes, Building blocks of Computers.	(1)
Combinational Blocks: Gates, Boolean Algebra & Solution.	(2)
K-Maps.	(3-4)
Multiplexers, Decoders, Encoders, etc.	(5-6)
Sequential Building Blocks: Flip Flops.	(7-8)
Registers, Counters, Random Access Memory etc., Concept of Bus, Data Movement among Registers.	(9)
A language to represent conditional data transfer, Data movement from/to Memory, Arithmetic and Logical operations along with Register transfer, Timing in Register transfer.	(10)
A simple Computer organization and Instruction set.	(11-12)
Instruction execution in terms of Microinstructions.	(13)
Concept of Interrupt and simple I/O organization, Implementation of the Processor using Building Blocks.	(14)
Addressing Modes, Instruction formats, CPU organization with large Registers.	(15)
Stacks and handling of Interrupts and Subroutines.	(16)
Instruction Pipelining: stages, hazards and methods of remove hazards.	(17)
Addition and Subtraction for sign magnitude and 2's complement numbers, Integer multiplication using Shift and Add.	(18)
Booth's Algorithm	(19)
Integer Division, Floating point representations and Arithmetic Algorithms	(20)
First Test	(21)
Strobe based and Handshake based communication.	(22)
Vector and priority interrupts, DMA based data transfer.	(23)
Interfacing peripherals with CPU(introduction), keyboard, mouse, printers, scanners, network card	(24)
Basic cell of Static & Dynamic RAM, building large memories using chips.	(25)
Cache Memory organization, Virtual Memory organization, Hard disk, CDROM	(26-27)
Machine and Assembly language, Pseudo-operations.	(28-31)

Subroutines in Assembly language.	(32-35)
Interrupt and I/O programming, Examples.	(33-37)
Assemblers and Macro Assemblers	(38-39)
Review	(40)
Final Test & Practical Test	(41)