II B.Tech - I Semester (17CS302) COMPUTER ORGANISATION

Int. Marks	Ext. Marks	Total Marks		L	Т	Р	С
40	60	100		3	1	-	3

Pre-Requisites: DLD

Course Objectives:

- Understand the architecture of a modern computer with its various processing units. Also, the Performance measurement of the computer system.
- In addition to this the memory management system of computer.

UNIT -I: Basic Structure of Computers: Functional unit, Basic Operational concepts, Bus structures, System Software, Performance, The history of computer development.

UNIT -II: Machine Instruction and Programs: Instruction and Instruction Sequencing: Register Transfer Notation, Assembly Language Notation, Basic Instruction Types, Addressing Modes, Basic Input/output Operations, The role of Stacks and Queues in computer programming equation. Component of Instructions: Logic Instructions, shift and Rotate Instructions

UNIT -III: Type of Instructions: Arithmetic and Logic Instructions, Branch Instructions, Addressing Modes, Input/output Operations

UNIT -IV: Input /Output Organization: Accessing I/O Devices, Interrupts: Interrupt Hardware, Enabling and Disabling Interrupts, Handling Multiple Devices, Direct Memory Access, Buses: Synchronous Bus, Asynchronous Bus, Interface Circuits, Standard I/O Interface: Peripheral Component Interconnect (PCI) Bus, Universal Serial Bus (USB)

UNIT -V: The Memory Systems: Basic memory circuits, Memory System Consideration, Read Only Memory: ROM, PROM, EPROM, EEPROM, Flash Memory, Cache Memories: Mapping Functions, INTERLEAVING Secondary Storage: Magnetic Hard Disks, Optical Disks,

UNIT -VI: Processing Unit: Fundamental Concepts: Register Transfers, Performing An Arithmetic Or Logic Operation, Fetching A Word From Memory, Execution of Complete Instruction, Hardwired Control, Micro programmed Control: Microinstructions, Micro program Sequencing, Wide Branch Addressing Microinstructions with next –Address Field

Course Outcomes:

CO-1	Gains knowledge on the architecture of modern computer.				
CO-2	Gains knowledge on how to analyze the Performance of a computer using machine				
	instructions and programs.				
CO-3	Gains knowledge on Assembly language programming.	L2			
CO-4	Gains knowledge on Input-output organization.	L2			
CO-5	Gains knowledge on Memory Systems.	L2			
CO-6	Gains knowledge on Processing Unit and Micro programmed control.	L2			

Correlation of COs with POs & PSOs:

	PO-	PSO-	PSO-	PSO-											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO-1	-	2	3	-	1	-	-	-	-	-	-	1	2	-	-
CO-2	-	2	3	-	1	I	I	-	I	-	I	1	2	-	-
CO-3	-	2	3	-	1	I	I	I	-	-	I	1	2	I	-
CO-4	-	2	3	-	1	I	I	I	-	-	I	1	2	I	-
CO-5	-	2	3	-	1	I	I	I	-	-	I	1	2	I	-
CO-6	-	2	3	-	1	-	-	-	-	-	-	1	2	_	-

Text Books:

- 1. Computer Organization, Carl Hamacher, Zvonks Vranesic, Safea Zaky, 5th Edition, McGraw Hill.
- 2. Computer Architecture and Organization, John P. Hayes, 3rd Edition, McGraw Hill.

Reference Books:

- 1. Computer Organization and Architecture William Stallings Sixth Edition, Pearson/PHI
- 2. Structured Computer Organization Andrew S. Tanenbaum, 4th Edition PHI/Pearson
- 3. Fundamentals or Computer Organization and Design, Sivaraama Dandamudi Springer Int. Edition.
- 4. "Computer Organization and Design: The Hardware/Software Interface" by David A. Patterson and John L. Hennessy.
- 5. J.P. Hayes, "Computer Architecture and Organization", McGraw-Hill, 1998.