COMPUTER ORGANIZATION

Paper Code   CEN-401

Course Credits   4

Lectures / week   3

Tutorial / week   1

Course Description **UNIT – I**

INTRODUCTION TO COMPUTER ORGANIZATION

Components of a computer, Organization of a computer, Review of Digital Logic Circuits and Digital Components, Data Representation, Register Transfer, Microoperations, Hardware Design of Microoperations.

UNIT- II

PROCESSING UNIT

Instructions, Operations and operands, Addressing modes, Instruction formats, Data path in a CPU, Control Unit implementation, Microprogrammed control, Characteristics of CISC and RISC processors, Performance of a processing unit.

UNIT- III

MEMORY SUBSYSTEM

Memory Hierarchy, Main Memory Unit, Internal organization of a memory chip, Organization of a main memory unit, SRAM, DRAM and ROM, Error corrective memories, Interleaved memory Units, Cache memory unit, Concept of cache memory, Mapping functions, Organization of a cache memory unit, fetch and write mechanisms, Memory management unit.

UNIT- IV

INPUT/OUTPUT SUBSYSTEM

Access of I/O devices, I/O ports, I/O control mechanisms, Program controlled I/O, Interrupt controlled I/O, DMA controlled I/O, I/O interfaces, System buses, peripherals, terminals, video displays, magnetic storage disks, magnetic tapes, CD ROMs

UNIT – V

HIGH PERFORMANCE PROCESSOR

Instruction pipelining, Pipeline hazards, super scalar processors, Performance consideration. Multi-processor systems, Shared memory systems, Interconnection networks, Cache in multiprocessor systems.

References / Text Books:	• William Stallings, "**Computer Organization and Architecture: Designing for Performance**" 9th Edition, Pearson Education
	• D.A. Patterson and J.L. Hennessy, "**Computer Organization and Design, the Hardware/Software Interface**", Morgan Kaufmann
	• V.C.Hamacher, Z.G. Vranesic and S.G. Zaky, "**Computer Organization**", 4th edition, McGraw Hill
	• M. Morris Mano, "**Computer System Architecture**" Prentice Hall.
Computer Usage / Software Requires:	

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