Module No.	Unit No.	Details of Topic	Hrs.
1.0		**Structure of a Computer System**	(03)
	1.1	Introduction of computer system and its sub modules, Basic organization of computer and block level description of the functional units. Von Newman model	
	1.2	Introduction to buses, bus types, and connection I/O devices to CPU and memory, PCI and SCSI	
2.0		**Arithmetic and Logic Unit**	(10)
	2.1	Introduction to Arithmetic and Logical unit and its hardware implementation, Booth's Recoding, Booth's algorithm for signed multiplication, Restoring division and non-restoring division algorithms	
	2.2	Computer Arithmetic: Fixed and Floating point numbers, Signed numbers, Integer Arithmetic, 2's Complement arithmetic, IEEE floating point number representation and operations like addition. Subtraction, multiplication and division. IEEE standards for Floating point representations (Single Precision and Double precision Format)	
3.0		**Central Processing Unit**	(08)
	3.1	CPU architecture, Register organization, Instruction formats and addressing modes(Intel processor).,Basic instruction cycle, Instruction interpretation and sequencing	
	3.2	Control unit, unit Microinstruction, Micro operation, Functioning of micro programmed control unit, RISC and CISC processors, RISC pipelining, RISC and CISC Architecture	
4.0		**Memory Organization**.	(09)
	4.1	Characteristics of memory system and hierarchy, main memory ,ROM, Types of ROM, RAM, SRAM, DRAM, Flash memory, High speed memories	

	4.2	Cache Memory Organization: Address mapping, Replacement Algorithms, Cache Coherence, MESI protocol, Interleaved and associative memories, virtual memory, main memory allocation, segmentation paging, secondary storage ,RAID levels	
5.0		**I/O Organization**	(03)
	5.1	Input /Output Systems, Programmed I/O, Interrupt driven I/O, DMA	
6.0		**Multiprocessor Configurations**	(03)
	6.1	Flynn's classification, Parallel processing concepts, Introduction to pipeline processing and pipeline hazards, design issues of pipeline architecture, Instruction pipelining	
		Total	**36**

Recommended Books

1. 1.W.Stallings William "Computer Organization and Architecture: Designing for Performance", Pearson Prentice Hall Publication, 7thEdition. C.
2. Hamacher, V. Zvonko, S. Zaky ,"Computer Organization", Tata McGraw Hill Publication,5th Edition.
3. Hwang and Briggs," Computer Architecture and Parallel Processing", Tata McGraw Hill Publication
4. A. Tanenbaum," Structured Computer Organization", Prentice Hall Publication, 4th Edition.