

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Electronics & Communication)
Semester: I
Syllabus with Effect from: June - 2011

Paper Code: PS01EELC01	Total Credit: 4
Title Of Paper: Computer Architecture & Organization	

Unit	Description in Detail	Weightage (%)
I	Instruction code, Design of computer instructions, Timing and Control Design, Instruction execution, Input, Output Instruction, Interrupt, Design of Basic Computer.	20%
II	Processor bus organization, Arithmetic Logic Unit, Stack Organization, General Instruction Format, Addressing Modes in instruction set, Data transfer instructions, Data Manipulations instructions, Program Control instructions, Microprocessor/Micro computer organization. Conventional control/Micro-Program control, Control Memory, Address sequencing, Micro-program sequencer.	20%
III	Algorithm for Addition, subtraction, Multiplication, Division for, unsigned number, Signed magnitude numbers, 1's Complement numbers, 2's complement numbers, floating point numbers, Decimal numbers, Processor configuration and design for different types of number representation.	20%
IV	Peripheral devices, I/O interfaces, Synchronous data transfer, Asynchronous data transfer, software/hardware approach for data transfer, Direct memory access, Priority interrupt, I/O processor, Multiprocessor system organization.	20%
V	Auxiliary memory, Microcomputer memory, Memory hierarchy, Associative memory, Virtual memory, semiconductor memories, cache memory, memory management hardware. Parallel processing, multiprogramming, time sharing, Pipeline processing, parallel processing with multiple CPUs and Functional units, Race conditions, Semaphores in process, Synchronization, Memory interleaving, RISC processor, CISC processors.	20%

Basic Text & Reference Books:-

- Computer Systems Architecture: Morris Mano, PHI, 1997, 3 rd Edition.
- Structural Computer Organization: Tanenbaum, PHI EEE, 1995.
- Computer Organization: W. Stallings, PHI EEE, 1997.
- Computer Organization: Hamacher, McGraw-Hill, 1994.

