

HEMCHANDRACHARYA, NORTH GUJARAT UNIVERSITY, PATAN

B.E SEMESTER - III (IT)

IT303: COMPUTER SYSTEM ARCHITECTURE – I

(In force from June 2006)

TEACHING SCHEME:

THEORY 03 HRS/WEEK

PRACT 02 HRS/WEEK

TOTAL 05 HRS/WEEK

EXAM SCHEME:

THEORY 100 MARKS(3 HRS)

PRACT 25 MARKS

TW/VIVA 25 MARKS

TOTAL 150 MARKS

JNIT I

Concept of Von Newman Machine, components in a computer, functions of various of components, bus structure, arithmetic logic unit, computer arithmetic: addition/subtraction of integers, multiplication and division of integers; floating point arithmetic operations, BCD arithmetic operations.

JNIT II

Concept of instruction format and instruction set of a computer, types of operands and operations; addressing modes; processor organization, register organization and stack organization; instruction cycle; basic details of Pentium processor and power PC processor, RISC and CISC instruction set.

JNIT III

Memory devices: Semiconductor and ferrite core memory, main memory, cache memory, associative memory organization; concept of virtual memory; memory organization and mapping; partitioning, demand paging, segmentation; magnetic disk organization, introduction to magnetic tape and CDROM.

JNIT IV

IO Devices: Programmed IO, interrupt driver IO, DMA, IO modules, IO addressing; IO channel, IO Processor, Dot matrix printer, ink jet printer, laser printer.

JNIT V

Advanced concepts: Horizontal and vertical instruction format, microprogramming, microinstruction sequencing and control; instruction pipeline; parallel processing; problems in parallel processing; data hazard, control hazard.

Text Books:

1. “ Computer organization and architecture”, Williams Stallings, PHI of India, 1998.
2. Computer organization, Carl Hamachar, Zvonko Vranesic and Safwat Zaky, McGraw Hill International Edition.
3. Computer Architecture & Organization, John P. Hayes, TMH III Edition.