

CA2CRT04 : Computer Organization and Architecture (Core)

Theory:4 hrs. per week

Credits:3

Unit 1: (12 hrs.)

Basic computer organization and design

Operational concepts, Instruction codes, Computer Registers, Computer Instructions, Memory locations and addresses, Instruction cycle, Timing and control, Bus organization.

Unit 2: (15 hrs.)

Central Processing Unit:

General Register Organization, Stack Organization, Addressing modes, Instruction Classification, Program control.

Unit 3: (16 hrs.)

Memory Organization

Memory Hierarchy, Main Memory, Organization of RAM, SRAM, DRAM, Read Only Memory ROM-PROM, EPROM, EEPROM, Auxiliary memory, Cache memory, Virtual Memory, Memory mapping Techniques.

Unit 4: (15 hrs.)

Parallel Computer Structures:

Introduction to parallel processing, Pipeline computers, Multi processing systems, Architectural classification scheme-SISD, SIMD, MISD, MIMD.

Unit 5: (14 hrs.)

Pipelining and Vector processing: Introduction to pipelining, Instruction and Arithmetic pipelines (design) Vector processing, Array Processors.

Book of study :

1. M.Morris Mano-Computer Systems Architecture, Third Edition, Pearson Education
2. Kai Hwang and F A Briggs-Computer Architecture and parallel processing, McGraw Hills,1990

Reference

1. Carl Hamacher -Computer Organization, Fifth Edition, Tata McGraw Hill.
2. John P Hayes -Computer Architecture & Organization–Mc Graw Hill
3. William Stallings-Computer Organization and Architecture , Seventh Edition, Pearson Education