**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 MemoryROM-PROM,EROM,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

William Stallings-Computer Organization and Architecture , Seventh Edition, Pearson Education