

## **PCS4I101 COMPUTER ORGANIZATION AND ARCHITECTURE**

### **Module - I (06 Hrs)**

Basic structures of Computers: Computer Architecture vs. Computer Organization, Functional units, Operational concepts, Registers, Bus and Bus organization, Memory location and addresses, Big-endian and Little-endian representation.

### **Module - II (14 Hrs)**

Basic Processing Units: Fundamental concepts, Instruction format, Instruction set, Addressing modes. Instruction Sequencing, Execution cycle, Hardwired control, Micro programmed control.

Memory System: Basic Concepts, Memory hierarchy, Main Memory, Secondary storage, Cache memory.

### **Module - III (8 Hrs)**

Arithmetic: Addition and Subtraction of signed and unsigned numbers, Multiplication of signed and unsigned numbers, Booth Multiplier, Array Multiplier, Integer Division, Floating- point Numbers and operations.

### **Module - IV (12 Hrs)**

Microprocessors, Instruction set, Assembly Language Programming, Stack, Subroutine, Interrupt, Accessing I/O devices, Standard I/O Interfaces- RS-232C, IEEE-488, USB, Data Transfer techniques.

### **Text Books:**

1. Computer Organization: Carl Hamacher, Zvonkovranesic, Safwat Zaky, McGraw Hill
2. Computer system Architecture: Morris M. Mano PHI.

### **Reference Book:**

1. Computer Architecture: Parhami, Oxford University Press
2. Computer Architecture and Organization: William Stallings, Pearson Education.
3. Computer Architecture and Organization: John P. Hayes McGraw Hill.
4. Computer Architecture and Organization: An Integrated Approach, Murdocca, Huring Willey India.
5. Computer Organization and Design Hardware/ Software Interface: David A. Patterson, John L. Hennessy, Elsevier.