Course Title: Computer Organization and Programming

Credit Structure: 3-0-0-3

Course Code: MC112

Program B.Tech (MnC)

Prerequisite: None

Category: Core

Course Objective

This course provides an introduction to computer organization, assembly language programming, and high level language programming using C. Topics include memory unit, arithmetic and logic unit, control unit, addressing modes and instructions for assembly language programming, along with C programming which covers data types, conditions and loops, arrays, functions, structures, union and pointers.

Computer organization: component of computer, memory unit, computation unit, control unit, input/output unit, Bits, data types, operation, logic structures, Von Neumann model, language

Programming: Basic Syntax, Memory Segments, Registers, System Calls, Addressing Modes, Variables, Constants, Arithmetic and logical Instructions, Conditions and Loops, Numbers, strings and arrays

C Programming: Brief Overview, Basic Syntax, Program Structure, Data Types, Variables, Constant, Conditions and Loops, Arrays, Function, Pointers, Structures and Unions.

References:


**Evaluation Components**
Mid semester evaluation – 30%
End semester evaluation – 40%
Quiz – 20%
Assignments – 10%

**Program Outcomes**

At the end of the course student will be able to:

- Design instruction set architecture
- Apply the concepts of digital logic to design the basic building blocks of a computer
- Understand the internal architecture of the CPU, memory hierarchy, assembly language instructions and addressing modes and timing analysis of instructions
- Write efficient C programs and analyze them to improve the space and time complexity

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