

**Andhra Pradesh State Council of Higher Education
M.Sc. Computer Science Syllabus**

MCS-103 COMPUTER ORGANIZATION

UNIT I

Digital logic circuits: Logic gates, Boolean algebra, Map simplification, Combinational logic circuits, Flip flops, Sequential logic circuits.

Digital Components: Integrated circuits, Decoders, Multiplexers, Registers, Shift registers, Binary Counters, Memory unit

Data Representation: Data types, Complements, Fixed & Floating point representation, other binary codes, Error Detection codes

UNIT II

Register Transfer and micro operations: Register transfer language, Register transfer, Bus and Memory transfers, Arithmetic micro operations, Logical micro operations, shift micro operations, Arithmetic Logic shift unit

Basic Computer Organization and Design: Instruction Codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycle, Memory Reference Instructions, Input-output and Interrupt

UNIT III

Micro programmed Control: control Memory, Address Sequencing, Micro program example, Design of control unit. Central Processing Unit, General Register Organization, Stack Organization, Instruction format, Addressing modes, Data Transfer and Manipulation, Program Control

UNIT IV

Computer Arithmetic: Introduction, Addition and Subtraction, Multiplication Algorithms, Division Algorithms, Floating-Point Arithmetic Operations, Decimal Arithmetic Unit, Decimal Arithmetic Operations.

Input-Output Organization: Peripheral Devices, Input Output Interface, asynchronous Data Transfer, Modes of Transfers, Priority Interrupt.

Memory Organization: Memory Hierarchy, Main memory, Auxiliary Memory, Associative memory, Cache memory.

Prescribed Book:

Morris Mano, "Computer System Architecture", 3rd Edition, PHI.

Reference Books:

1. V. Rajaraman, T. Radha Krishnan, "Computer Organization and **MCS 205 - DESIGN & ANALYSIS OF ALGORITHMS**

Architecture", PHI

2. Behrooz Parhami, "Computer Architecture", Oxford (2007)

3. ISRD group, "Computer Organization", ace series, TMH (2007)

4. William Stallings, "Computer Organization and Architecture –

Designing for Performance", Pearson Education (2005)