

**0903 –DIPLOMA IN ELECTRONICS & COMMUNICATION  
SEMESTER -6  
090364(b) - COMPUTER ARCHITECTURE & ORGANISATION.**

**RATIONALE**

This course will provide the student with the knowledge of detailed organisation of currently available organisation based on bus structure & principle of working of various other components & also they learn as to how the basic components of computer interact with each other. to form a working system.

**DETAILED CONTENTS**

**1. Basic computer organisation & design**

Instruction codes, indirect & direct address, computer registers, common bus system, computer instructions, timing control, instruction memory reference, Register reference & reference instructions. Interrupts, hard wire & microprogrammed control unit.

**2. Central Processing Unit**

Introduction, general register organisation, control word, examples of microinstructions, stack organisation, register stack, reverse. Polish notation evaluation of arithmetic expressions. Instruction formats, Addressing modes, 3 address instructions, 2 Address instructions. One address instructions, zero address instructions. Types of interrupts, compare RISC & CISC.

**3. Computer Arithmetic**

Introduction, addition & subtraction, multiplication, & Division algorithms.

**4. Register transfer & micro operations**

Register transfer language, arithmetic, logic & shift micro operation:

**5. Input-output organisation**

Input-output interface, I bus, & interface4 module, I vs memory bus. Isolated Vs memory mapped I, Modes of data, transfer, first in first out buffer, priority interrupt, daisy chaining priority, parallel priority interrupt priority encoder, interrupt cycle, Direct memory access, DMA controller, DMA transfer.

**6. Memory organisation**

Memory hierarchy, main memory, memory, address, map, RAM & ROM chips, memory connection to CPU, Auxiliary memory, Associative memory, Read & write operation. Cache memory, Associative mapping, Virtual memory, memory management hardware, memory segmentation .

**RECOMMENDED BOOKS**

1. Computer System and Architecture by M. Mano: Prentice Hall India Pvt. Ltd., New Delhi.
2. Computer Architecture and Organization by JP Hays, MC Graw Hill company, New

Delhi.

3. Computer Organization and Architecture by W. Stallings: Prentice Hall of India Ltd., New Delhi.