

**UNIT I****Chapter 1 : Computer Data Representation 1-1 to 1-21****Syllabus :**

Basic computer data types, Complements, Fixed point representation, Register Transfer and Micro-operations : Floating point representation, Register Transfer language, Register Transfer, Bus and Memory Transfers (Tri-State Bus Buffers, Memory Transfer), Arithmetic Micro-Operations, Logic Micro-Operations, Shift Micro-Operations, Arithmetic logical shift unit.

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**UNIT II****Chapter 2 : Basic Computer Organization and Design 2-1 to 2-17****Syllabus :**

Instruction codes, Computer registers, computer instructions, Timing and Control, Instruction cycle, Memory-Reference Instructions, Input-output and interrupt, Complete computer description, Design of Basic computer, design of Accumulator Unit.

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**UNIT III****Chapter 3 : Assembly Language  
Programming****3-1 to 3-24****Syllabus :**

Introduction, Machine Language, Assembly Language, assembler, Program loops, Programming Arithmetic and logic operations, Looping construct, subroutines, I-O Programming.

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### UNIT V

#### Chapter 5 : Central Processing Unit 5-1 to 5-19

##### Syllabus :

Introduction, General Register Organization, Stack Organization, Instruction format, Addressing Modes, data transfer and manipulation, Program Control, Reduced Instruction Set Computer (RISC) & Complex Instruction Set Computer (CISC)

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### UNIT VI

#### Chapter 6 : Pipeline and Vector Process 6-1 to 6-24

##### Syllabus :

Flynn's taxonomy, Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction, Pipeline, RISC Pipeline, Vector Processing, Array Processors.

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**UNIT VII****Chapter 7 : Computer Arithmetic 7-1 to 7-25****Syllabus :**

Introduction, Addition and subtraction, Multiplication Algorithms (Booth Multiplication Algorithm), Division Algorithms, Floating Point Arithmetic operations, Decimal Arithmetic Unit.

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**UNIT VIII****Chapter 8 : Input-Output Organization 8-1 to 8-17****Syllabus :**

Input-Output Interface, Asynchronous Data Transfer, Modes of Transfer, Priority Interrupt, DMA, Input-Output Processor (IOP), CPU IOP Communication, Serial communication.

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**UNIT IX**

**Chapter 9 : Memory Organization 9-1 to 9-45**

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**UNIT X**

**Chapter 10 : Multiprocessors 10-1 to 10-9**

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