Th-1 COMPUTER SYSTEM ARCHITECTURE

Common to (CSE/IT)

Theory	**4 Periods per week**	**Internal Assessment**	**20 Marks**
Total Periods	**60 Periods**	**End Sem Exam**	**80 Marks**
Examination	**3hours**	**Total Marks**	**100Marks**

A. Topic wise distribution of periods

Sl. No.	Topics	Periods
1	BASIC STRUCTURE OF COMPUTER HARDWARE	06
2	INSTRUCTIONS & INSTRUCTION SEQUENCING	07
3	PROCESSOR SYSTEM	10
4	MEMORY SYSTEM	10
5	INPUT – OUTPUT SYSTEM	10
6	I/O INTERFACE & BUS ARCHITECTURE	10
7	PARALLEL PROCESSING	07
9	**TOTAL**	**60**

B. RATIONAL: Now a days the usage of computer has become very essential in various areas like education, entertainment, business, sports etc. This subject will expose the learner to have an idea about the architecture of different components of a computer system and their operation procedure. Further the learner will have idea how the different components integrate to execute a task to get the result. It also gives an idea how to improve the processing capability.

C. OBJECTIVE: After completion of this course the student will be able to**:**

- Understand the basic structure of a computer with instructions.
- Learn about machine instructions and program execution.
- Learn about the internal functional units of a processor and how they are interconnected.
- Understand how I/O transfer is performed.
- Learn about basic memory circuit, organization and secondary storage.
- Understand concept of parallel processing.

D. COURSE CONTENTS:

1. Basic structure of computer hardware

1.1Basic Structure of computer hardware
1.2Functional Units
1.3Computer components
1.4 Performance measures
1.5 Memory addressing & Operations

2. Instructions & instruction Sequencing

2.1 Fundamentals to instructions
2.2 Operands
2.3 Op Codes
2.4 Instruction formats
2.5 Addressing Modes

3. Processor System

3.1 Register Files
3.2 Complete instruction execution
- Fetch

- Decode
- Execution

3.3 Hardware control
3.4 Micro program control

4. Memory System

4.1Memory characteristics
4.2 Memory hierarchy
4.3 RAM and ROM organization
4.4 Interleaved Memory
4.5 Cache memory
4.6 Virtual memory

5. Input – Output System

5.1 Input - Output Interface
5.2 Modes of Data transfer
5.3 Programmed I/O Transfer
5.4 Interrupt driven I/O
5.5 DMA
5.6 I/O Processor

6. I/O Interface & Bus architecture

6.1 Bus and System Bus
6.2 Types of System Bus

- Data
- Address
- Control

7.1 Bus
6.3 Bus Structure
6.4 Basic Parameters of Bus design
6.5 SCSI
6.6 USB

7. Parallel Processing

7.1 Parallel Processing
7.2 Linear Pipeline
7.3 Multiprocessor
7.4 Flynn's Classification

Coverage of Syllabus upto Internal Exams (I.A.)
Chapter 1,2,3,4

Book Recommended:-

Sl.No	Name of Authors	Title of the Book	Name of the Publisher
1	Moris Mano	Computer System Architecture	PHI
2	Er. Rajeev Chopra	Computer Architecture and Organisation	S.Chand
3	Parthasarthy, Senthil Kumar	Fundamentals of Computer Architecture	TMH