SYNERGY SCHOOL OF ENGINEERING

DEPARTMENT OF ELECTRICAL ENGINEERING

Discipline: Computer science Engineering	Semester: - 3rdSem CSE	Name of the teaching faculty: - PRAJNAPARAMITA KABI
Subject: - Digital Electronics and Computer Organization	No. of Days/week class Allotted: -3	No. of weeks: -15 SESSION-2026-2027 WINTER Starting date- 01 . 07 . 2026 Closing date- 05 . 11 . 2026
No. of week	No. of class	Topic to be Taught
1	1ST	Difference Between Analog and Digital Signal Number systems
	2ND	Number Systems Binary, Octal Conversion
	3RD	Number Systems Signals Decimal, and Hexadecimal Conversion
2	1ST	Binary Arithmetic Boolean Algebra
	2ND	Binary Arithmetic Boolean Algebra
	3RD	Boolean algebra
3	1ST	Basic Operations Laws,
	2ND	Basic Operations Laws, and Simplification
	3RD	Logic Gates and Circuits **AND**, OR, NOT, NAND, NOR, XOR, XNOR,
4	1ST	Symbol and truth table of all logic gates
	2ND	Design and Simplification of Logic Circuits Using Boolean Algebra,
	3RD	Karnaugh Maps (K-Maps)
5	1ST	Karnaugh Maps for Simplification
	2ND	K-Maps Practical Applications of Logic Gates in Real-World Circuits
	3RD	K-Maps Practical Applications of Logic Gates in Real-World Circuits
6	1ST	Combinational and Sequential Circuits
	2ND	Combinational Circuits: Multiplexers, Demultiplexers
	3RD	Encoders, and Decoders
7	1ST	Sequential Circuits: Flip-Flops (SR, JK) and Their Applications
	2ND	Sequential Circuits: Flip-Flops (D, T) and Their Applications
	3RD	Counters and Their Applications
8	1ST	Synchronous and Asynchronous Counters
	2ND	Registers and Shift Registers: Types and Uses
	3RD	Fundamentals of Computer
9	1ST	Basic Structure of a Computer
	2ND	Structure of a Computer Organization CPU, Memory
	3RD	Basic Structure of a Computer Input/Output Devices Instruction Cycle
10	1ST	Basic Structure of a Computer Fetch, Decode, Execute Memory Organization
	2ND	Types of Memory (RAM, ROM)
	3RD	Memory Cache, Virtual Memory
11	1ST	Introduction to Buses: Address Bus, Data Bus, and Control Bus
	2ND	Processor Architecture and Control
	3RD	Unit Introduction to Microprocessors
12	1ST	Unit Introduction to Microcontrollers

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13	2ND	Basics of Arithmetic Logic Unit (ALU) and Control Unit
	3RD	Instruction Set Architecture (ISA)
	1ST	RISC vs CISC Pipelining
	2ND	RISC vs CISC Pipelining and Performance Optimization in Processors
	3RD	Input/Output Systems and Advanced Topics
14	1ST	I/O Devices and Interfaces: Keyboard, Mouse, Printers, and Storage Devices Interrupts and DMA (Direct Memory Access
	2ND	I/O Devices and Interfaces: Keyboard, Mouse, Printers, and Storage Devices Interrupts and DMA (Direct Memory Access
	3RD	Overview of Modern Trends
15	1ST	Multicore Processors, GPUs, and Embedded Systems
	2ND	Mini- Project: Design a Simple Digital Circuit or Simulate a Basic CPU Operation
	3RD	Mini- Project: Design a Simple Digital Circuit or Simulate a Basic CPU Operation

Prepared by
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