BHUBANANANDA ORISSA SCHOOL OF ENGINEERING, CUTTACK

ELECTRICAL ENGG.DEPARTMENT

LESSON PLAN

SEMESTER : 5TH (C)

SESSION – Winter(2021-22)

SUBJECT: Digital Electronics & Microprocessor

NAME OF FACULTY: PRIYANKA SAHU

Discipline: **Electrical Engg.**	Semester:**5th (C)**	Name of the teaching faculty: **PRIYANKA SAHU**
Subject-**Digital Electronics & Microprocessor**	No. of Days/per week class allotted:**05 PERIODS/WEEK (MON,TUE,WED,THU,FRI-1 period each)**	Semester: From Date: **1/10/2021** To Date: **08/01/2022** No. of weeks: **15 WEEKS**
Week	Class Day	Theory/Practical Topics
1st (01/10/2021-02/10/2021)	01/10/2021	**1. Basics of Digital Electronics** 1.1 Binary, Octal, Hexadecimal number systems and compare with Decimal system.
2nd (04/10/2021-09/10/2021)	04/10/2021	1.1 Binary, Octal, Hexadecimal number systems and compare with Decimal system.
	05/10/2021	1.1 Binary, Octal, Hexadecimal number systems and compare with Decimal system.
	07/10/2021	1.2 Binary addition, subtraction, Multiplication and Division.
	08/10/2021	1.3 1's complement and 2's complement numbers for a binary number.
3rd (11/10/2021-16/10/2021)		**PUJA HOLIDAY**
4th (18/10/2021-23/10/2021)	21/10/2021	1.3 1's complement and 2's complement numbers for a binary number.
	22/10/2021	1.3 1's complement and 2's complement numbers for a binary number. 1.4 Subtraction of binary numbers in 2's complement method
5th (25/10/2021-30/10/2021)	25/10/2021	1.4 Subtraction of binary numbers in 2's complement method.
	26/10/2021	1.5 Use of weighted and Un-weighted codes & write Binary equivalent number for a number in 8421, Excess-3 and Gray Code and vice-versa.
	27/10/2021	1.6 Importance of parity Bit.
	28/10/2021	1.7 Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.

	29/10/2021	1.8 Realize AND, OR, NOT operations using NAND, NOR gates. Class test 1
6th (01/11/2021-06/11/2021)	01/11/2021	1.8 Realize AND, OR, NOT operations using NAND, NOR gates.
	02/11/2021	1.9 Different postulates and De-Morgan's theorems in Boolean algebra.
	03/11/2021	1.10 Use Of Boolean Algebra For Simplification Of Logic Expression
	05/11/2021	1.11 Karnaugh Map For 2,3,4 Variable, Simplification Of SOP And POS Logic Expression Using K-Map.
7th (08/11/2021-13/11/2021)	08/11/2021	1.11 Karnaugh Map For 2,3,4 Variable, Simplification Of SOP And POS Logic Expression Using K-Map.
	09/11/2021	~~Class test 1~~ 1.11 Karnaugh Map For 2,3,4 Variable, Simplification of SOP & POS Logic Expression Using K-Map.
	10/11/2021	**2. Combinational Logic Circuits** 2.1 Give the concept of combinational logic circuits.
	11/11/2021	2.2 Half adder circuit and verify its functionality using truth table.
	12/11/2021	2.3 Realize a Half-adder using NAND gates only and NOR gates only.
8th (15/11/2021-20/11/2021)	15/11/2021	2.4 Full adder circuit and explain its operation with truth table
	16/11/2021	2.5 Realize full-adder using two Half-adders and an OR – gate and write truth table.
	17/11/2021	2.6 Full subtractor circuit and explain its operation with truth table Class test 2
	18/11/2021	2.6 Full subtractor circuit and explain its operation with truth table.
9th (22/11/2021-27/11/2021)	22/11/2021	2.7 Operation of 4 X 1 Multiplexers and 1 X 4 demultiplexer.
	23/11/2021	2.7 Operation of 4 X 1 Multiplexers and 1 X 4 demultiplexer.
	24/11/2021	2.8 Working of Binary-Decimal Encoder & 3 X 8 Decoder.
	25/11/2021	2.8 Working of Binary-Decimal Encoder & 3 X 8 Decoder.
	26/11/2021	2.9 Working of Two bit magnitude comparator.
10th (29/11/2021-04/12/2021)	29/11/2021	**3. Sequential Logic Circuits** 3.1 Give the idea of Sequential logic circuits.
	30/11/2021	3.2 State the necessity of clock and give the concept of level

		clocking and edge triggering.
	01/12/2021	3.3 Clocked SR flip flop with preset and clear inputs.
	02/12/2021	3.4 Construct level clocked JK flip flop using S-R flip-flop and explain with truth table.
	03/12/2021	3.5 Concept of race around condition and study of master slave JK flip flop.
11th (06/12/2021-11/12/2021)	06/12/2021	**Internal Assessment**
	07/12/2021	3.6 Give the truth tables of edge triggered D and T flip flops and draw their symbols 3.7 Applications of flip flops
	08/12/2021	3.8 Define modulus of a counter. 3.9 4-bit asynchronous counter and its timing diagram
	09/12/2021	3.10 Asynchronous decade counter 3.11 4-bit synchronous counter
	10/12/2021	3.12 Distinguish between synchronous and asynchronous counters 3.13 State the need for a Register and list the four types of registers
12th (13/12/2021-18/12/2021)	13/12/2021	3.14 Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop
	14/12/2021	3.14 Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop
	15/12/2021	**4. 8085 Microprocessor** 4.1 Introduction to Microprocessors, Microcomputers 4.2 Architecture of Intel 8085A Microprocessor and description of each block
	16/12/2021	4.2 Architecture of Intel 8085A Microprocessor and description of each block
	17/12/2021	4.3 Pin diagram and description
13th (20/12/2021-25/12/2021)	20/12/2021	4.3 Pin diagram and description
	21/12/2021	4.4 Stack, Stack pointer & stack top 4.5 Interrupts
	22/12/2021	4.6 Opcode & Operand 4.7 Differentiate between one byte, two byte & three byte instruction with example

	23/12/2021	4.8 Instruction set of 8085 example
	24/12/2021	4.9 Addressing modes 4.10 Fetch Cycle, Machine Cycle, Instruction Cycle, T-State
14th (27/12/2021-01/01/2022)	27/12/2021	4.11 Timing Diagram for memory read, memory write, I/O read, I/O write
	28/12/2021	4.12 Timing Diagram for 8085 instruction`
	29/12/2021	4.13 Counter and time delay
	30/12/2022	4.14 Simple assembly language programming of 8085 Class test 3
	31/12/2022	**5. INTERFACING AND SUPPORT CHIPS** 5.1 Basic Interfacing Concepts 5.2 Memory mapping & I/O mapping Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
15th (03/1/2022-08/01/2022)	03/01/2022	5.2 Memory mapping & I/O mapping Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
	04/01/2022	5.3 Application using 8255: Seven segment LED display, Square wave generator, Traffic light Controller
	05/01/2022	5.3 Application using 8255: Seven segment LED display, Square wave generator, Traffic light Controller
	06/01/2022	**Class test 4**
	07/01/2022	Revision