

UNIVERSITY OF JHARKHAND  
JHARKHAND STATE SCHOOL OF  
ENGINEERING, CUTACK

*ELECTRICAL ENGG. DEPARTMENT*

**LESSON PLAN**

**SEMESTER:- 5<sup>TH</sup> (B)**

**SESSION:- Winter(2022-23)**

**SUBJECT: Digital Electronics & Microprocessor**

**NAME OF FACULTY: IPSITA MOHANTY**

Discipline: Electrical Engg.	Semester:5 <sup>th</sup> (C)	Name of the teaching faculty: <b>IPSITA MOHANTY</b>
Subject: Digital Electronics & Microprocessors.	No. of Days/per week: 05 Allotted: 05 PERIODS/WEEK <b>(MON,TUE,WED,THU,FRI-1.Period Each)</b>	Semester: From Date: 15/09/2022 To Date: 22/12/2022 No. of weeks: 15 WEEKS
Week	Class Day	Theory/Practical Topics
1 <sup>st</sup> (15/09/2022-17/09/2022)	15/09/2022	<b>1. Basics of Digital Electronics</b> 1.1 Binary, Octal, Hexadecimal number systems and compare with Decimal system.
	16/09/2022	1.1 Binary, Octal, Hexadecimal number systems and compare with Decimal system.
2 <sup>nd</sup> (19/09/2022-24/09/2022)	19/09/2022	1.1 Binary, Octal, Hexadecimal number systems and compare with Decimal system.
	20/09/2022	1.2 Binary addition, subtraction, Multiplication and Division.
	21/09/2022	1.3 1's complement and 2's complement numbers for a binary number.
	22/09/2022	1.3 1's complement and 2's complement numbers for a binary number.
	23/09/2022	1.3 1's complement and 2's complement numbers for a binary number.
3 <sup>rd</sup> (26/09/2022-01/10/2022)	26/09/2022	1.4 Subtraction of binary numbers in 2's complement method.
	27/09/2022	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.
	28/09/2022	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.
	29/09/2022	1.6 Importance of parity Bit.
	30/09/2022	1.6 Importance of parity Bit.

4 <sup>th</sup> (03/10/2022-08/10/2022)		<b>PUJA HOLIDAYS</b>
5 <sup>th</sup> (10/10/2022-15/10/2022)	10/10/2022	1.7 Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.
	11/10/2022	1.7 Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.
	12/10/2022	1.8 Realize AND, OR, NOT operations using NAND, NOR gates.
	13/10/2022	1.8 Realize AND, OR, NOT operations using NAND, NOR gates.
	14/10/2022	1.9 Different postulates and De-Morgan's theorems in Boolean algebra.
6 <sup>th</sup> (17/10/2022-22/10/2022)	17/10/2022	1.10 Use Of Boolean Algebra For Simplification Of Logic Expression
	18/10/2022	1.11 Karnaugh Map For 2,3,4 Variable, Simplification Of SOP And POS Logic Expression Using K-Map.
	19/10/2022	1.11 Karnaugh Map For 2,3,4 Variable, Simplification Of SOP And POS Logic Expression Using K-Map.
	20/10/2022	1.11 Karnaugh Map For 2,3,4 Variable, Simplification Of SOP And POS Logic Expression Using K-Map.
	21/10/2022	<b>Class test 1</b>
7 <sup>th</sup> (24/10/2022-29/10/2022)	24/10/2022	<b>Kali Puja/Diwali</b>
	25/10/2022	<b>2. Combinational Logic Circuits</b>
	26/10/2022	2.1 Give the concept of combinational logic circuits.
	27/10/2022	2.2 Half adder circuit and verify its functionality using truth table.
	28/10/2022	2.3 Realize a Half-adder using NAND gates only and NOR gates only.
8 <sup>th</sup> (31/10/2022-05/11/2022)	31/10/2022	2.3 Realize a Half-adder using NAND gates only and NOR gates only.
	01/11/2022	2.4 Full adder circuit and explain its operation with truth table
	02/11/2022	2.5 Realize full-adder using two Half-adders and an OR – gate and write truth table.
	03/11/2022	2.6 Full subtractor circuit and explain its operation with truth table
	04/11/2022	2.6 Full subtractor circuit and explain its operation with truth table.
		2.7 Operation of 4 X 1 Multiplexers and 1 X 4 demultiplexer.

9 <sup>th</sup> (07/11/2022-12/11/2022)	07/11/2022	2.7 Operation of 4 X 1 Multiplexers and 1 X 4 demultiplexer.
	08/11/2022	Rasa Purnima
	09/11/2022	2.8 Working of Binary-Decimal Encoder & 3 X 8 Decoder.
	10/11/2022	2.9 Working of Binary-Decimal Encoder & 3 X 8 Decoder.
	11/11/2022	2.9 Working of Two bit magnitude comparator.
10 <sup>th</sup> (14/11/2022-19/11/2022)	14/11/2022	<b>3. Sequential Logic Circuits</b> 3.1 Give the idea of Sequential logic circuits.
	15/11/2022	3.2 State the necessity of clock and give the concept of level clocking and edge triggering.
	16/11/2022	3.3 Clocked SR flip flop with preset and clear inputs. <b>Internal Assessment</b>
	17/11/2022	3.4 Construct level clocked JK flip flop using S-R flip-flop and explain with truth table.
	18/11/2022	3.5 Concept of race around condition and study of master slave JK flip flop.
11 <sup>th</sup> (21/11/2022-26/11/2022)	21/11/2022	3.6 Give the truth tables of edge triggered D and T flip flops and draw their symbols 3.7 Applications of flip flops
	22/11/2022	3.8 Define modulus of a counter.
	23/11/2022	3.9 4-bit asynchronous counter and its timing diagram 3.10 Asynchronous decade counter 3.11 4-bit synchronous counter
	24/11/2022	3.12 Distinguish between synchronous and asynchronous counters
	25/11/2022	3.13 State the need for a Register and list the four types of registers 3.14 Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop
12 <sup>th</sup> (28/11/2022-03/12/2022)	28/11/2022	3.14 Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop
	29/11/2022	3.14 Working of SISO, SIPO, PISO, PIPO Register with truth table using flip flop
	30/11/2022	<b>Quiz test</b>  <b>4. 8085 Microprocessor</b> 4.1 Introduction to Microprocessors, Microcomputers

	01/12/2022	4.2 Architecture of Intel 8085A Microprocessor and description of each block
	02/12/2022	4.2 Architecture of Intel 8085A Microprocessor and description of each block
	03/12/2022	4.3 Bus diagram and description 4.4 Bus operation and description
	06/12/2022	4.4 Stack, Stack pointer & stack top 4.5 Interrupts
	07/12/2022	4.6 Opcode & Operand 4.7 Differentiate between one byte, two byte & three byte instruction with example
	08/12/2022	4.8 Instruction set of 8085 example
	09/12/2022	4.9 Addressing modes 4.10 Fetch Cycle, Machine Cycle, Instruction Cycle, T-State
14 <sup>th</sup> (12/12/2022-17/12/2022)	12/12/2022	4.11 Timing Diagram for memory read, memory write, I/O read, I/O write
	13/12/2022	4.12 Timing Diagram for 8085 instruction
	14/12/2022	4.13 Counter and time delay
	15/12/2022	4.14 Simple assembly language programming of 8085
	16/12/2022	<b>Class test 2</b>
15 <sup>th</sup> (19/12/2022-22/12/2022)	19/12/2022	<b>5. INTERFACING AND SUPPORT CHIPS</b> 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
	20/12/2022	5.2 Memory mapping & I/O mapping Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
	21/12/2022	5.3 Application using 8255: Seven segment LED display, Square wave generator, Traffic light Controller
	22/12/2022	5.3 Application using 8255: Seven segment LED display, Square wave generator, Traffic light Controller
		<b>REVISION</b>

**BHUBANANANDA ORISSA SCHOOL OF  
ENGINEERING, CUTTACK**

***ELECTRICAL ENGG. DEPARTMENT***

**LESSON PLAN**

**SEMESTER:- 3RD (A)**

**SESSION:- Winter(2022-23)**

**SUBJECT: CIRCUIT & NETWORK THEORY**

**NAME OF FACULTY: IPSITA MOHANTY**

Discipline: <b>Electrical Engg.</b>	Semester:3RD (A)	Name of the teaching faculty: <b>IPSITA MOHANTY</b>
Subject-CIRCUIT & NETWORK <b>THEORY</b>	No. of Days/per week class allotted:05 PERIODS/WEEK <b>(MON,TUE,WED,THU,FRI-1 Period Each)</b>	Semester: From Date: <b>15/09/2022</b> To Date: <b>22/12/2022</b> No. of weeks: <b>15 WEEKS</b>
Week	Class Day	Theory/Practical Topics
1 <sup>st</sup> (15/09/2022-17/09/2022)	15/09/2022	<b>1.MAGNETIC CIRCUIT</b> 1 .1 Introduction
	16/09/2022	1 .2 Magnetizing force, Intensity, MMF, flux and their relations
2 <sup>nd</sup> (19/09/2022-24/09/2022)	19/09/2022	1 .3 Permeability, reluctance and permeance.
	20/09/2022	1 .4 Analogy between electric and Magnetic Circuits
	21/09/2022	1 .5 B-H Curve
	22/09/2022	1 .6 Series & parallel magnetic circuit.
	23/09/2022	1 .7 Hysteresis loop
3 <sup>rd</sup> (26/09/2022-01/10/2022)	26/09/2022	<b>2.COUPLED CIRCUIT</b> 2 .1 Self Inductance and Mutual Inductance
	27/09/2022	2 .2 Conductively coupled circuit and mutual impedance
	27/09/2022	2 .3 Dot convention
	28/09/2022	2 .4 Coefficient of coupling
	29/09/2022	2 .5 Series and parallel connection of coupled inductors. 2 .6 Solve numerical problems
4 <sup>th</sup> (03/10/2022-08/10/2022)	30/09/2022	<b>3. CIRCUIT ELEMENTS AND ANALYSIS:</b> 3 . 1 Active, Passive, Unilateral & bilateral, Linear & Non linear elements 3 . 2 Mesh Analysis, Mesh Equations by inspection

5 <sup>th</sup> (10/10/2022-15/10/2022)		PUJA HOLIDAYS
	10/10/2022	3.3 Super mesh Analysis 3.4 Nodal Analysis, Nodal Equations by inspection
	11/10/2022	3.5 Super node Analysis.
	12/10/2022	3.6 Source Transformation Technique
	13/10/2022	3.7 Solve numerical problems (With Independent Sources Only)
6 <sup>th</sup> (17/10/2022-22/10/2022)	14/10/2022	<b>4. NETWORK THEOREMS:</b> 4.1 Star to delta and delta to star transformation
	17/10/2022	<b>CLASS TEST-1</b>
	18/10/2022	4.2 Super position Theorem
	19/10/2022	4.3 Thevenin's Theorem
	20/10/2022	4.4 Norton's Theorem
7 <sup>th</sup> (24/10/2022-29/10/2022)	21/10/2022	4.5 Maximum power Transfer Theorem
	25/10/2022	4.6 Solve numerical problems (With Independent Sources Only)
	26/10/2022	4.6 Solve numerical problems (With Independent Sources Only)
	27/10/2022	4.6 Solve numerical problems (With Independent Sources Only)
	28/10/2022	4.6 Solve numerical problems (With Independent Sources Only)
8 <sup>th</sup> (31/10/2022-05/11/2022)	31/10/2022	4.6 Solve numerical problems (With Independent Sources Only)
	01/11/2022	<b>5. AC CIRCUIT AND RESONANCE:</b> 5.1 A.C. through R-L, R-C & R-L-C Circuit
	02/11/2022	5.2 Solution of problems of A.C. through R-L, R-C & R-L-C series Circuit by complex algebra method.
	03/11/2022	5.3 Solution of problems of A.C. through R-L, R-C & R-L-C parallel & Composite Circuits.
	04/11/2022	5.4 Power factor & power triangle.



9 <sup>th</sup> (07/11/2022-12/11/2022)	07/11/2022	5.5 Deduce expression for active, reactive, apparent power.
	08/11/2022	<b>Rasa Purnima</b>
	09/11/2022	5.6 Derive the resonant frequency of series resonance and parallel resonance circuit
	10/11/2022	5.7 Define Bandwidth, Selectivity & Q-factor in series circuit.
	11/11/2022	5.8 Solve numerical problems.
10 <sup>th</sup> (14/11/2022-19/11/2022)	14/11/2022	5.8 Solve numerical problems.
	15/11/2022	<b>6. POLYPHASE CIRCUIT</b>
		6.1 Concept of poly-phase system and phase sequence
	16/11/2022	<b>INTERNAL ASSESEMENT</b>
	17/11/2022	6.2 Relation between phase and line quantities in star & delta connection
	18/11/2022	6.3 Power equation in 3-phase balanced circuit.
11 <sup>th</sup> (21/11/2022-26/11/2022)	21/11/2022	6.4 Solve numerical problems
	22/11/2022	6.5 Measurement of 3-phase power by two wattmeter method.
	23/11/2022	6.5 Measurement of 3-phase power by two wattmeter method.
	24/11/2022	6.6 Solve numerical problems.
	25/11/2022	<b>QUIZ TEST</b>
12 <sup>th</sup> (28/11/2022-03/12/2022)	28/11/2022	<b>7. TRANSIENTS:</b>
		7.1 Steady state & transient state response.
	29/11/2022	7.2 Response to R-L, R-C & RLC circuit under DC condition.
	30/11/2022	7.3 Solve numerical problems
	01/12/2022	<b>8. TWO-PORT NETWORK:</b>
		8.1 Open circuit impedance (z) parameters
	02/12/2022	8.2 Short circuit admittance (y) parameters
13 <sup>th</sup> (05/12/2022-10/12/2022)	05/12/2022	8.3 Transmission (ABCD) parameters

	07/12/2022	8.4 Hybrid (h) parameters. 8.5 Inter relationships of different parameters.
	08/12/2022	8.6 T and $\pi$ representation. 8.7 Solve numerical problems
	09/12/2022	<b>9. FILTERS:</b> 9.1 Define filter 9.2 Classification of pass Band, stop Band and cut-off frequency.
	12/12/2022	<b>CLASS TEST-2</b>
14 <sup>th</sup> (12/12/2022-17/12/2022)	13/12/2022	9.3 Classification of filters.
	14/12/2022	9.4 Constant – K low pass filter.
	15/12/2022	9.5 Constant – K high pass filter
	16/12/2022	9.6 Constant – K Band pass filter
	19/12/2022	9.7 Constant – K Band elimination filter.
15 <sup>th</sup> (19/12/2022-22/12/2022)	20/12/2022	9.8 Solve Numerical problems
	21/12/2022	9.8 Solve Numerical problems
	22/12/2022	<b>REVISION</b>