LESSON PLAN

ON

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

1ST SEMESTER

SESSION: 2022-23

PREPARED BY

NIHAR RANJAN DIXIT

PTGF IN ELECTRICAL ENGINEERING

GOVERNMENT POLYTECHNIC, PURI

GOVERNMENT POLYTECHNIC, PURI
DEPARTMENT OF ELECTRICAL ENGINEERING

Discipline: **ELECTRICAL/ CIVIL ENGINEERING**	Semester: **1ST**	Name of the Teaching Faculty: **NIHAR RANJAN DIKSHIT**
Subject: **BASIC ELECTRICAL ENGINEERING**	No. of days/per week class allotted: **02**	Semester From date: **25.10.2022** To Date: **31.01.2023** No. of Weeks: **15**
PRE-REQUISITE	Basic knowledge about current, electricity and simple mathematics.	
COURSE OUTCOMES	**CO1**: Understand the basics of Current flow in various types of circuit **CO2:** Understand the concept of Power generation. **CO3**: Understand the concept of Conversion of electrical energy. **CO4**: Understand the concept of Wiring and power billing . **CO5:** Understand the basics of Measuring instruments .	

Week	Class Day	Theory/Practical Topics	DELIVERY METHOD
1ST	1ST	**1. FUNDAMENTALS** Concept of current flow. Concept of source and load.	Whiteboard
	2ND	State Ohm's law and concept of resistance. Relation of V, I & R in series circuit.	Whiteboard
2ND	1ST	Relation of V, I & R in parallel circuit. Division of current in parallel circuit.	Whiteboard
	2ND	1.7 Effect of power in series & parallel circuit.	Whiteboard
3RD	1ST	Kirchhoff's Law. Simple problems on Kirchhoff's law.	Whiteboard
	2ND	**2. A.C. THEORY** Generation of alternating emf.	Whiteboard
4TH	1ST	2.2 Difference between D.C. & A.C.	Whiteboard
	2ND	2.3 Define Amplitude, instantaneous value, cycle, Time period, frequency, phase angle, phase difference.	Whiteboard
5TH	1ST	2.4 State & Explain RMS value, Average value, Amplitude factor & Form factor with Simple problems.	Whiteboard
	2ND	2.5 Represent AC values in phasor diagrams.	Whiteboard
6TH	1ST	2.6 AC through pure resistance, inductance & capacitance	Whiteboard
	2ND	2.7 AC though RL, RC, RLC series circuits.	Whiteboard
7TH	1ST	2.8 Simple problems on RL, RC & RLC series circuits.	Whiteboard
	2ND	2.9 Concept of Power and Power factor	Whiteboard
8TH	1ST	2.10 Impedance triangle and power triangle.	Whiteboard
	2ND	**3. GENERATION OF ELECTRICAL POWER** Give elementary idea on generation of electricity from thermal , hydro & nuclear power station with block diagram	Whiteboard
9TH	1ST	**4. CONVERSION OF ELECTRICAL ENERGY** Introduction of DC machines.	Whiteboard
	2ND	Main parts of DC machines. Classification of DC generator	Whiteboard
10TH	1ST	Classification of DC motor. Uses of different types of DC generators & motors.	Whiteboard

	2ND	4.6 Types and uses of single phase induction motors.	Whiteboard
11TH	1ST	Concept of Lumen Different types of Lamps (Filament, Fluorescent, LED bulb) its Construction and Principle.	Whiteboard
	2ND	4.9 Star rating of home appliances (Terminology, Energy efficiency, Star rating Concept)	Whiteboard
12TH	1ST	**5. WIRING AND POWER BILLING** Types of wiring for domestic installations. Layout of household electrical wiring	Whiteboard
	2ND	List out the basic protective devices used in house hold wiring. Calculate energy consumed in a small electrical installation	Whiteboard
13TH	1ST	**6. MEASURING INSTRUMENTS** Introduction to measuring instruments.	Whiteboard
	2ND	Torques in instruments. Different uses of PMMC type of instruments (Ammeter & Voltmeter).	Whiteboard
14TH	1ST	Different uses of MI type of instruments (Ammeter & Voltmeter). Draw the connection diagram of A.C/ D.C Ammeter, voltmeter, energy meter and wattmeter. (Single phase only).	Whiteboard
	2ND	Revision	Whiteboard
15TH	1ST	Revision	Whiteboard
	2ND	Revision	Whiteboard

BOOKS RECOMENDED:

1. ABC of Electrical Enginnering by Jain & Jain (Dhanpat Rai Publication)
2. Fundamentals of Electrical Engg and Electronics by B.L Thereja
3. Concept of Basic Electrical Enginnering ,P.K Das and A.K. Mallick by B.M Publications
4. Fundamentals of Electrical Engg by Asfaq Hussain
5. Fundamentals of Electrical Engg by JB Gupta
6. Basic Electrical Engg. By Chakraborti (Mcgraw Hill)

WEBSITE RESOUCES:

01. https://www.youtube.com/watch?v=UtxZguC2OtE&list=PLm_MSClsnwm9z1WKnK0RFqLzrznI_Isb8
02. https://www.youtube.com/watch?v=qwu5DXpI7qA&list=PLWbmeZJ9qIMYpqj15QC5sziHR9WGyFLm-
03. https://youtu.be/rLUyP6g1VNI (NPTEL)

26.10.22

Sign. of Faculty concerned

26/10.

Principal
G.PPuri

26/10/22

Sign.of HODi/c (P.P.Rout)