



GOVERNMENT POLYTECHNIC, PURID DEPARTMENT OF ELECTRICAL ENGINEERING

Discipline: **ELECTRICAL ENGG.**

Semester: **5TH**

Name of the Teaching Faculty: **NIHAR RANJAN DIXIT**
PTGF IN ELECTRICAL ENGINEERING

Subject: **EM-2 LAB**

No. of days/per week class allotted: **06**

Semester-5th From date: **01.08.2023** To Date: **30.11.2023**
No. of Weeks: **15**

PRE-REQUISITE

Basic knowledge about network solving and engineering mathematics.

COURSE OUTCOMES

- CO1: Develop the practical ability to start, run & reverse induction motors with different starters such as D.O.L, star-delta. Rotor Resistance and Auto-Transformers.
- CO 2. Practically comprehend the voltage-regulation required and calculate efficiency of different A.C generators.
- CO 3. Develop the practical ability to start, run & reverse the direction of single-phase induction motor.
- CO 4. Gain practical acquaintance with measurement of power & energy of 3-phase and single-phase loads with two-wattmeter, three-wattmeter and energy-meter respectively.
- CO 5. Develop practical understanding of the working of O.C.B. induction type O.C/reverse power relay, Buchholz's relay and earth fault relay.

Week	Class Day	Theory/Practical Topics	DELIVERY METHOD
1 ST	1 ST	Study of (Manual and Semi automatic) Direct on Line starter, Star-Delta starter, connection and running a 3-phase Induction motor and measurement of starting current.	Whiteboard
	2 ND	Study of (Manual and Semi automatic) Direct on Line starter, Star-Delta starter, connection and running a 3-phase Induction motor and measurement of starting current.	Whiteboard
2 ND	1 ST	Study of (Manual and Semi automatic) Direct on Line starter, Star-Delta starter, connection and running a 3-phase Induction motor and measurement of starting current.	Whiteboard
	2 ND	Study of (Manual and Semi automatic) Direct on Line starter, Star-Delta starter, connection and running a 3-phase Induction motor and measurement of starting current.	Whiteboard
3 RD	1 ST	Study and Practice of connection & Reverse the direction of rotation of Three Phase Induction motor.	Whiteboard
	2 ND	Study and Practice of connection & Reverse the direction of rotation of Three Phase Induction motor.	Whiteboard
4 TH	1 ST	Study and Practice of connection & Reverse the direction of rotation of Single Phase Induction motor	Whiteboard
	2 ND	Study and Practice of connection & Reverse the direction of rotation of Single Phase Induction motor	Whiteboard
5 TH	1 ST	Heat run test of 3-phase transformer	Whiteboard
	2 ND	Heat run test of 3-phase transformer	Whiteboard

6 TH	1 ST	OC and SC test of alternator and determination of regulation by synchronous impedance method.	Whiteboard
	2 ND	OC and SC test of alternator and determination of regulation by synchronous impedance method.	Whiteboard
7 TH	1 ST	Determination of regulation of alternator by direct loading.	Whiteboard
	2 ND	Determination of regulation of alternator by direct loading..	Whiteboard
8 TH	1 ST	Parallel operation of two alternators and study load sharing.	Whiteboard
	2 ND	Parallel operation of two alternators and study load sharing.	Whiteboard
9 TH	1 ST	Measurement of power of a 3-phase Load using two wattmeter method and verification of the result using one 3-phase wattmeter.	Whiteboard
	2 ND	Measurement of power of a 3-phase Load using two wattmeter method and verification of the result using one 3-phase wattmeter.	Whiteboard
10 TH	1 ST	Connection of 3-phase energy meter to a 3-phase load.	Whiteboard
	2 ND	Connection of 3-phase energy meter to a 3-phase load.	Whiteboard
11 TH	1 ST	Connection of 3-phase energy meter to a 3-phase load.	Whiteboard
	2 ND	Connection of 3-phase energy meter to a 3-phase load.	Whiteboard
12 TH	1 ST	Study of induction type over current / reverse power relay.	Whiteboard
	2 ND	Study of induction type over current / reverse power relay.	Whiteboard
13 TH	1 ST	Study of Buchholz's relay.	Whiteboard
	2 ND	Study of Buchholz's relay.	Whiteboard
14 TH	1 ST	Study of an earth fault relay	Whiteboard
	2 ND	Study of an earth fault relay	Lecture notes

LEARNING RESOURCES:

1. Electronics Lab premier by Sacikala - (S. Chand)

WEBSITE RESOURCES:

DIGITAL ELECTRONICS & MICROPROCESSOR LAB - Search (bing.com)

[Signature]
01.08.23

Sign. of Faculty concerned

[Signature]
Principal
G.P Puri

[Signature]
11/8/23

Sign. of HODi/c