LESSON PLAN

DEPT. OF ELECT. ENGG GOVT. POLY, BHADRAK ESTD-2017

SUB: ELECTRICAL MEASUREMENT & INSTRUMENTATION

BRANCH:- ELECTRICAL ENGG.

SEMESTER: 4th

NAME OF FACULTY: UMESH KU. DALAI

GOVERNMENT POLYTECHNIC, BHADRAK

SESSION:2024-25

Hod, Electrical

HOD (ELECT.)
G.P.BHADRAK

Academic Co-ordinator

Academic Co-ordinator

Principal
Govt. Polytechnic, Bhadrak

& Family Welfare, Parliamentary Affairs | TUE | 6 13 20 27

Discipline: Electrical Engg.	Semester: 4th	Name of the Teaching Faculty : UMESH KU DALAI(LECT IN ELECT.ENGG.)
Subject: Electrical Measurement & Instrumentation	No. of Days/per week class allotted:4+1	Semester from date: 04.02.2025 – 17.05.2025 No. of Weeks:15
Week	**Class Day**	**Theory**
1st	1st	Define Accuracy, precision, Errors, Resolutions Sensitivity and tolerance.
	2nd	Classification of measuring instruments.
	3rd	Explain Deflecting, controlling arrangements in indicating type of instruments.
	4th	Explain damping arrangements in indicating type of instruments.
	5th	Calibration of instruments.
2nd	1st	Describe Construction, principle of operation of Moving iron type instruments.
	2nd	errors, ranges merits and demerits of Moving iron type instruments.
	3rd	Describe Construction, principle of operation of Permanent Magnet Moving coil type instruments.
	4th	errors, ranges merits and demerits of Permanent Magnet Moving coil type instruments.
	5th	Describe Construction, principle of operation, errors, ranges merits and demerits of Dynamometer type instruments .
3rd	1st	Describe Construction, principle of operation, errors, ranges merits and demerits of Rectifier type instruments .
	2nd	Describe Construction, principle of operation, errors, ranges merits and demerits of Induction type instruments .
	3rd	Extend the range of instruments by use of shunts and Multipliers.
	4th	Extend the range of instruments by use Multipliers.
	5th	Solve Numerical
4th	1st	Describe Construction, principle of working of Dynamometer type wattmeter (LPF Type)
	2nd	Describe Construction, principle of working of Dynamometer type wattmeter (UPF Type)
	3rd	The Errors in Dynamometer type wattmeter
	4th	methods of their correction.
	5th	Discuss Induction type watt meters.
	1st	Discuss Induction type watt meters.
	2nd	Introduction of Energy meter.

5th	3rd	Single Phase Induction type Energy meters – construction, working principle
	4th	Single Phase Induction type Energy meters r compensation & adjustments.
	5th	Testing of Energy Meters.
6th	1st	Testing of Energy Meters.
	2nd	Tachometers, types and working principles
	4th	Principle of operation and construction of Mechanical resonance resonance Type frequency meters.
	5th	Principle of operation and construction of Mechanical resonance resonance Type frequency meters.
7th	1st	Principle of operation and construction of Electrical resonance resonance Type frequency meters.
	2nd	Principle of operation and construction of Electrical resonance resonance Type frequency meters.
	3rd	Principle of operation and working of Dynamometer type single phase power factor meters.
	4th	Principle of operation and working of Dynamometer type single phase power factor meters.
	5th	Principle of operation and working of Dynamometer type three phase power factor meters.
8th	1st	Principle of operation and working of Dynamometer type three phase power factor meters.
	2nd	Measurement of medium resistance by wheat Stone bridge method.
	3rd	Measurement of high resistance by loss of charge method.
	4th	Construction, principle of operations of Megger & Earth tester for insulation resistance and earth resistance measurement respectively.
	5th	Construction, principle of operations of Megger & Earth tester for insulation resistance and earth resistance measurement respectively.
9th	1st	Construction and principles of Multimeter. (Analog and Digital)
	2nd	Measurement of inductance by Maxewell's Bridge method.
	3rd	Measurement of capacitance by Schering Bridge method
	4th	Define Transducer, sensing element or detector element.
	5th	Define transduction elements.

10th	1st	Classify transducer. Give examples of various class of transducer.
	2nd	Resistive transducer
	3rd	Linear and angular motion potentiometer
	4th	Thermistor and Resistance thermometers.
	5th	Wire Resistance Strain Gauges
11th	1st	Principle of linear variable differential Transformer (LVDT
	2nd	Principle of linear variable differential Transformer (LVDT
	3rd	Construction and principles of Multimeter. (Analog and Digital)
	4th	Measurement of inductance by Maxewell's Bridge method.
	5th	Measurement of capacitance by Schering Bridge method
12th	1st	Define Transducer, sensing element or detector element and transduction elements.
	2nd	Classify transducer. Give examples of various class of transducer.
	3rd	Resistive transducer.
	4th	Linear and angular motion potentiometer.
	5th	Thermistor and Resistance thermometers.
13th	1st	Wire Resistance Strain Gauges.
	2nd	Inductive Transducer.
	3rd	Principle of linear variable differential Transformer (LVDT).
	4th	Uses of LVDT.
	5th	Capacitive Transducer
	1st	General principle of capacitive transducer.

14th	2nd	Variable area capacitive transducer.
	3rd	Change in distance between plate capacitive transducer
	4th	Piezo electric Transducer
	5th	Hall Effect Transducer with their applications.
15th	1st	Principle of operation of Cathode Ray Tube.
	2nd	Principle of operation of Oscilloscope (with help of block diagram).
	3rd	Measurement of DC Voltage & current.
	4th	Measurement of AC Voltage, current,
	5th	Measurement of phase & frequency.

01/02/2025

SIGNATURE OF FACULTY

Lect.in Elect.Engg.
Govt.Poly.Bhadrak