Discipline:- Electrical Engineering	Semester:-4th	Name of the teaching faculty:- **Lect. Pratik Mohanty**
Subject-Electrical Measurement& Instrumentation	No. of days/per week class allotted:-4	Semester from:- 16 -01 -2024to 24-04-2024
Week	Class day	Theory
1st	1st	**1. MEASURINGINSTRUMENTS** 1.1 **Define Accuracy, precision, Errors, Resolutions Sensitivityand tolerance.**
	2nd	**1.2Classificationofmeasuringinstruments.**
	3rd	**1.3ExplainDeflecting,controllinganddampingarrangementsin indicating type of**
	4th	**1.3ExplainDeflecting,controllinganddampingarrangementsin indicating type of instruments**
2nd	1st	**1.4Calibrationofinstruments.**
	2nd	**2. ANALOGAMMETERSANDVOLTMETERS** 2.1. **Describe Construction, principle of operation, errors, ranges merits and demerits of:** 2.1.1 **Moving iron type instruments.**
	3rd	2.1. **Describe Construction, principle of operation, errors, ranges merits and demerits of:** 2.1.1 **Moving iron type instruments**
	4th	**2.1.2PermanentMagnetMovingcoiltypeinstruments**
3rd	1st	**2.1.3Dynamometertypeinstruments**
	2nd	**2.1.4Rectifiertypeinstruments**
	3rd	**2.1.5Inductiontypeinstruments**
	4th	**2.1.5Inductiontypeinstruments**
4th	1st	**2.2Extendtherangeofinstrumentsbyuseofshuntsand Multipliers.**
	2nd	**2.3SolveNumerical.**
	3rd	**2.3SolveNumerical.**
	4th	**3. WATTMETERSANDMEASUREMENTOFPOWER** 3.1 **Describe Construction, principle of working of Dynamometer type wattmeter. (LPF and UPF type)**
5th	1st	3.1 **Describe Construction, principle of working of Dynamometer type wattmeter. (LPF and UPF type)**
	2nd	3.1 **Describe Construction, principle of working of Dynamometer type wattmeter.(LPF and UPF type)**
	3rd	**3.2TheErrorsinDynamometertypewattmeterandmethodsoftheir correction.**
	4th	**3.2TheErrorsinDynamometertypewattmeterandmethodsoftheir correction.**
6th	1st	**3.3Discuss Induction type wattmeters**
	2nd	**3.3Discuss Induction type wattmeters**
	3rd	**3.3Discuss Induction type wattmeters**
	4th	**4.ENERGYMETERSANDMEASUREMENTOFENERGY**

		4.1Introduction
7th	1st	4.2SinglePhaseInductiontypeEnergymeters–construction,working principle and their compensation & adjustments.
	2nd	4.2SinglePhaseInductiontypeEnergymeters–construction,working principle and their compensation & adjustments.
	3rd	4.2SinglePhaseInductiontypeEnergymeters–construction,working principle and their compensation & adjustments.
	4th	4.2SinglePhaseInductiontypeEnergymeters–construction,working principle and their compensation & adjustments.
8th	1st	4.3TestingofEnergyMeters
	2nd	4.3TestingofEnergyMeters
	3rd	4.3TestingofEnergyMeters
	4th	5. MEASUREMENTOFSPEED,FREQUENCYANDPOWERFACTOR 5.1 Tachometers, types and working principles
9th	1st	5.2PrincipleofoperationandconstructionofMechanicalandElectrical resonance Type frequency meters
	2nd	5.2PrincipleofoperationandconstructionofMechanicalandElectrical Resonance Type frequency meters
	3rd	5.2PrincipleofoperationandconstructionofMechanicalandElectrical resonance Type frequency meters
	4th	5.3PrincipleofoperationandworkingofDynamometertypesinglephase and three phase power factor meters.
10th	1st	5.3PrincipleofoperationandworkingofDynamometertypesinglephase and three phase power factor meters.
	2nd	5.3PrincipleofoperationandworkingofDynamometertypesinglephase and three phase power factor meters.
	3rd	6. MEASUREMENTOFRESISTANCE,INDUCTANCE&CAPACITANCE 6.1 Classification of resistance 6.1..1.Measurementoflowresistanceby potentiometer method
	4th	6.1..2.MeasurementofmediumresistancebywheatStonebridge method. 6.1..3.Measurementofhighresistancebylossofcharge method
11th	1st	.6.2Construction,principleofoperationsofMegger&Earthtesterfor insulation resistance and earth resistance measurement respectively
	2nd	6.2Construction,principleofoperationsofMegger&Earthtesterforinsulation Resistance and earth resistance measurement respectively
	3rd	6.3ConstructionandprinciplesofMultimeter.(Analog and Digital)
	4th	6.3Construction and principles of Multimeter. Analog and Digital)
12th	1st	6.4MeasurementofinductancebyMaxewell'sBridgemethod
	2nd	6.5MeasurementofcapacitancebyScheringBridgemethod
	3rd	7. SENSORSANDTRANSDUCER 7.1. Define Transducer, detector element and transduction elements.
	4th	7.2.Classifytransducer.Giveexamplesofvariousclassoftransducer
13th	1st	7.3. Resistive transducer

		7.3.1 Linear and angular motion potentiometer.
	2nd	7.3.2 Thermistor and Resistance thermometers. 7.3.3 Wire Resistance Strain Gauges
	3rd	7.4.InductiveTransducer
	4th	7.4.1 Principle of linear variable differential Transformer(LVDT) 7.4.2 Uses of LVDT.
14th	1st	7.5. Capacitive Transducer. 7.5.1 General principle of capacitive transducer.
	2nd	7.5.2 Variable area capacitive transducer. 7.5.3 Change in distance between plate capacitive transducer
	3rd	7.6.PiezoelectricTransducerandHallEffectTransducerwiththeir applications
	4th	8. OSCILLOSCOPE 8.1. Principle of operation of Cathode Ray Tube.
15th	1st	8.2.PrincipleofoperationofOscilloscope(with help of block diagram).
	2nd	8.3.MeasurementofDCVoltage&current.
	3rd	8.4.Measurement of AC Voltage, current, phase &frequency.
	4th	8.4.Measurement of AC Voltage, current, phase & frequency.

Pratik Mohanty
08/1/24
Teaching Faculty

H.O.D.E.E

PRINCIPAL
08/1/24

G.I.E.T.POLYTECHNIC,CUTTACK