ACADEMIC LESSION PLAN FOR SESSION - 2023-24 .

Dept. of Electrical Engg

GOVT POLYTECHNIC KANDHAMAL

Name Of the Faculty :- CHINMAYEE PANIGRAHI

ELECTRICAL MEASUREMENT & INSTRUMENTATION

Course Code: Th.3

Theory : 4 P/W Total Period s: 75P/ Sem End Semester Exam : 80 marks

Examination : 3 Hours TOTAL MARKS : 100 Marks

Sem : 4TH EE

WEEK	PERIOD	TOPIC
1st	1st	Define Accuracy, precision, Errors, Resolutions Sensitivity and tolerance
	2nd	Classification of measuring instruments.
	3rd	Explain Deflecting arrangements in indicating type of instruments.
	4th	Explain controlling arrangements in indicating type of instruments.
		Explain damping arrangements in indicating type of instruments.
2nd	1st	Calibration of instruments.
	2nd	Describe Construction, principle of operation, errors, ranges merits and demerits of Moving iron type instruments.
	3rd	Describe Construction, principle of operation, errors, ranges merits and demerits of Moving iron type instruments(continue..)
	4th	Describe Construction, principle of operation, errors, ranges merits and demerits of Permanent Magnet Moving coil type instruments.
		Describe Construction, principle of operation, errors, ranges merits and demerits of Permanent Magnet Moving coil type instruments(continue..)
3rd	1st	Describe Construction, principle of operation, errors, ranges merits and demerits of Dynamometer type instruments
	2nd	Describe Construction, principle of operation, errors, ranges merits and demerits of Dynamometer type instruments(continue..)
	3rd	Describe Construction, principle of operation, errors, ranges merits and demerits of Rectifier type instruments
	4th	Describe Construction, principle of operation, errors, ranges merits and demerits of Induction type instruments
		Extend the range of instruments by use of shunts resistor
4th	1st	Extend the range of instruments by use of Multipliers.
	2nd	Solve Numerical
	3rd	Solve Numerical(continue..)
	4th	Describe Construction, principle of working of Dynamometer type wattmeter.
	5th	Errors in Dynamometer type wattmeter

5th	1st	methods of their Error correction
	2nd	Discuss L P Ftype Dynamometer wattmeter
	3rd	Discuss U P F type Dynamometer wattmeter
	4th	Discuss Induction type watt meters
		Single Phase Induction type Energy meters (introduction)
6th	1st	Single Phase Induction type Energy meters – construction & working principle
	2nd	Single Phase Induction type Energy meters – construction & working principle(continue..)
	3rd	their compensation and adjustments.
	4th	Testing of Energy Meters
		Different types of Tachometers(introduction)
7th	1st	working principles of Tachometers
	2nd	Principle of operation and construction of Mechanical Type frequency meters
	3rd	Principle of operation and construction of Mechanical Type frequency meters(continue…)
	4th	Principle of operation and construction of Electrical resonance Type frequency meters.
		Principle of operation and construction of Electrical resonance Type frequency meters(continue…)
8th	1st	Principle of operation and working of Dynamometer type single phase power factor meters.
	2nd	Principle of operation and working of Dynamometer type three phase power factor meters
	3rd	Classification ofresistance
	4th	Measurement of low resistance by potentiometer method
		Measurement of medium resistance by wheat Stone bridge method
9th	1st	Measurement of high resistance by loss of chargemethod
	2nd	Construction, principle of operations of Megger for measurement of insulation resistance
	3rd	Construction, principle of operations of Earth tester for earth resistance measurement
	4th	Construction and principles of Multimeter. (Analog)
	5th	Construction and principles of Multimeter. (Digital)
10th	1st	Measurement of inductance by Maxewell's Bridge method
	2nd	Measurement of capacitance by Schering Bridge method
	3rd	Define Transducer, sensing element or detector element and transduction elements
	4th	Classify transducer. Give examples of various class oftransducer, Resistivetransducer.
		Linear motionpotentiometer
11th	1st	angular motionpotentiometer
	2nd	Thermistor and Resistance thermometers
	3rd	Wire Resistance StrainGauges ,InductiveTransducer
	4th	Principle of linear variable differential Transformer(LVDT), Uses ofLVDT
		CapacitiveTransducer. General principle of capacitive transducer
12th	1st	Variable area capacitive transducer, Change in distance between plate capacitive transducer
	2nd	Piezo electric Transducer(their applications)

	3rd	Hall Effect Transducer(theirapplications)
	4th	Principle of operation of Cathode Ray Tube
	5th	Principle of operation of Oscilloscope (with help of block diagram
13th	1st	Measurement of DC Voltage &current by CRO
	2nd	Measurement of AC Voltage, current by CRO.
	3rd	Measurement of AC phase &frequency BY CRO.
	4th	Overall Discussion
	5th	Overall Discussion
14th	1st	Overall Discussion
	2nd	Previous year question Discussion
	3rd	Tutorial
	4th	Tutorial
	5th	Tutorial
15th	1st	Tutorial
	2nd	Tutorial
	3rd	Tutorial
	4th	Tutorial
	5th	Tutorial

HOD in BIT Electrical department **Lectr. In Electrical department**

Principal in BIT Polytechnic, BLS