SYNERGY POLYTECHNIC, BBSR

The Lesson Plan

Descipline: **ELECTRICAL ENGINEERING**	Semester: **4th**	Name of the Teaching Faculty: **SOUMYASHREE MOHAPATRA**
Subject: **ELECTRICAL MEASUREMENT & INSTRUMENTATION**	No of Days/per week class allotted: **4**	Semester from Date: **16.01.2024** to Date: 26.4.24 No of Weeks:
Week	Class Day	Theory/Practical Topics
1st **MODULE 1 MEASURING INSTRUMENTS**	1st	Accuracy, precision, Errors, Resolutions Sensitivity and tolerance.
	2nd	Classification of measuring instruments
	3rd	Deflecting, controlling and damping arrangements in indicating type
	4th	Calibration of instruments
	5th	
2nd **MODULE 2 ANALOG AMMETERS AND VOLTMETERS**	1st	Moving iron type instruments
	2nd	Permanent Magnet Moving coil type instruments
	3rd	Dynamometer type instruments
	4th	Rectifier type instruments
	5th	
3rd **MODULE 2 ANALOG AMMETERS AND VOLTMETERS**	1st	Induction type instruments
	2nd	Extend the range of instruments by use of shunts and Multipliers
	3rd	Numerical Problems
	4th	Numerical Problems
	5th	
4th **MODULE 3 WATTMETERS AND MEASUREMENT OF POWER**	1st	Dynamometer type wattmeter. (LPF type)
	2nd	Dynamometer type wattmeter. (UPF type)
	3rd	The Errors in Dynamometer type wattmeter and methods of their correction
	4th	Induction type watt meters
	5th	
5th **MODULE 4 ENERGYMETERS AND MEASUREMENT OF ENERGY**	1st	Single Phase Induction type Energy meters
	2nd	Testing of Energy Meters
	3rd	Tachometers
	4th	Mechanical resonance Type frequency meters.
	5th	Electrical resonance Type frequency meters.

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1st MODULE 5 MEASUREMENT OF SPEED, FREQUENCY AND POWER FACTOR	1st	Dynamometer type single phase power factor meters
	2nd	Dynamometer type three phase power factor meters
	3rd	Measurement of low resistance by potentiometer method.
	4th	Measurement of medium resistance by wheat Stone bridge method
	5th	
2nd MODULE 6 MEASUREMENT OF RESISTANCE, INDUCTANCE& CAPACITANCE	1st	Measurement of high resistance by loss of charge method
	2nd	Construction, principle of operations of Earth tester
	3rd	Construction, principle of operations of Megger
	4th	Construction and principles of Multimeter
	5th	
3rd MODULE 7 SENSORS AND TRANSDUCER	1st	Measurement of inductance by Maxewell's Bridge method
	2nd	Measurement of capacitance by Schering Bridge method
	3rd	Transducer, sensing element or detector element and transduction elements
	4th	Classify transducer. Give examples of various class of transducer
	5th	
4th MODULE 7 SENSORS AND TRANSDUCER	1st	Linear and angular motion potentiometer
	2nd	Thermistor and Resistance thermometers
	3rd	Wire Resistance Strain Gauges
	4th	linear variable differential Transformer (LVDT)
	5th	
5th MODULE 7 SENSORS AND TRANSDUCER	1st	capacitive transducer
	2nd	Variable area capacitive transducer
	3rd	Change in distance between plate capacitive transducer
	4th	Piezo electric Transducer and Hall Effect Transducer
	5th	

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Week	Class Day	Theory/Practical Topics
1st MODULE 8 OSCILLOSCOPE	1st	Principle of operation of Cathode Ray Tube
	2nd	Principle of operation of Oscilloscope (with help of block diagram)
	3rd	Measurement of DC current
	4th	Measurement of DC Voltage
	5th	
2nd MODULE 8 OSCILLOSCOPE	1st	Measurement of AC Voltage
	2nd	Measurement of AC current
	3rd	Measurement of AC phase
	4th	Measurement of AC frequency
	5th	
3rd	1st	Numerical Problems
	2nd	Numerical Problems.
	3rd	—do—
	4th	—do—
	5th	
4th	1st	Revision of Module - I, II,
	2nd	—do—
	3rd	Revision of Module III, IV
	4th	—do—
	5th	
5th	1st	Revision of Module V, VI
	2nd	—do—
	3rd	Revision of Module VII, VIII.
	4th	—do—.
	5th	

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