

SUBJECT-TH3. ELECTRICAL MEASUREMENT & INSTRUMENTATION

MONTH	MODULE/UNIT	COURSE TO BE COVERED	TOTAL NO. OF CLASS	REMARK
APRIL	UNIT-1	1.MEASURING INSTRUMENTS	05	
		1.1 Define Accuracy, precision, Errors, Resolutions Sensitivity and tolerance	01	
		1.2 Classification of measuring instruments.	01	
		1.3 Explain deflecting, controlling and damping arrangements in indicating type of instruments	02	
		1.4 Calibration of instruments.	01	
APRIL	UNIT-2	2. ANALOG AMMETERS AND VOLTMETERS	10	
		2.1. Describe Construction, principle of operation, errors, ranges merits and demerits of: 2.1.1 Moving iron type instruments	01	
		2.1.2 Permanent Magnet Moving coil type instruments	01	
		2.1.3 Dynamometer type instruments	02	
		2.1.4 Rectifier type instruments	02	
		2.1.5 Induction type instruments	02	
		2.2 Extend the range of instruments by use of shunts and Multipliers	01	
		2.3 Solve Numerical	01	
MAY	UNIT-3	3. WATTMETERS AND MEASUREMENT OF POWER	08	
		3.1 Describe Construction, principle of working of Dynamometer type wattmeter. (LPF and UPF type)	03	
		3.2 The Errors in Dynamometer type wattmeter and methods of their correction	02	
		3.3 Discuss Induction type watt meters	03	

MAY	UNIT-4	4. ENERGYMETERS AND MEASUREMENT OF ENERGY	08	
		4.1 Introduction	02	
		4.2 Single Phase Induction type Energy meters - construction, working principle and their compensation & adjustments	06	
		4.3 Testing of Energy Meters	02	
MAY	UNIT-5	5. MEASUREMENT OF SPEED, FREQUENCY AND POWER FACTOR	07	
		5.1 Tachometers, types and working principles	02	
		5.2 Principle of operation and construction of Mechanical and Electrical resonance Type frequency meters	02	
		5.3 Principle of operation and working of Dynamometer type single phase and three phase power factor meters	03	
JUNE	UNIT-6	6. MEASUREMENT OF RESISTANCE, INDUCTANCE & CAPACITANCE	08	
		6.1 Classification of resistance 6.1.1. Measurement of low resistance by potentiometer method. . 6.1.2. Measurement of medium resistance by wheat Stone bridge method. 6.1.3. Measurement of high resistance by loss of charge method	02	
		6.2 Construction, principle of operations of Megger & Earth tester for insulation resistance and earth resistance measurement respectively	02	
		6.3 Construction and principles of Multimeter. (Analog and Digital)	02	
		6.4 Measurement of inductance by Maxwell's Bridge method	01	
		6.5 Measurement of capacitance by Schering Bridge method	01	

JUNE	UNIT-7	7. SENSORS AND TRANSDUCER	09	
		7.1. Define Transducer, sensing element or detector element and transduction elements	01	
		7.2. Classify transducer. Give examples of various class of transducer	01	
		7.3. Resistive transducer 7.3.1 Linear and angular motion potentiometer. 7.3.2 Thermistor and Resistance thermometers. 7.3.3 Wire Resistance Strain Gauges	02	
		7.4. Inductive Transducer 7.4.1 Principle of linear variable differential Transformer (LVDT) 7.4.2 Uses of LVDT	01	
		7.5. Capacitive Transducer. 7.5.1 General principle of capacitive transducer. 7.5.2 Variable area capacitive transducer. 7.5.3 Change in distance between plate capacitive	03	
		7.6. Piezoelectric Transducer and Hall Effect Transducer with their applications	01	
JUNE	UNIT-8	8. OSCILLOSCOPE	05	
		8.1. Principle of operation of Cathode Ray Tube	01	
		8.2. Principle of operation of Oscilloscope (with help of block diagram).	02	
		8.3. Measurement of DC Voltage & current	01	
		8.4. Measurement of AC Voltage, current, phase & frequency	01	

