"PVCNSSK" GOVT. POLYTECHNIC BILASPUR at KALOL

PTSC-7.1

PLANNED THEORY SYLLABUS COVERAGE

GPB	Department: Electrical Engg.	Subject: EEMI
	Sem. & Branch : 4th & EE	Duration : 3years
SYLLABUS COVERAGE	Total Periods: Theory:56	

Sr No	Period Nos	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1.	4(1-4)	Introduction to Electrical Measuring Instruments	1.1 Concept of Measurement and Instruments. 1.2 Block diagram of generalized measurement Systems, 1.3 Measurement Terms: Accuracy, precision, linearity sensitivity,reproducibility, dead band, Range. 1.4 Types of electrical measuring instruments - indicating, integrating and recording type instruments. 1.5 Essentials of indicating instruments - deflecting, controlling and damping torque, methods of achieving deflecting & controlling torques in analog instruments			
2.	6(5-10)	Ammeters and Voltmeters (Moving coil and moving iron type)	2.1 Concept of Galvanometer, Ammeter, Voltmeter and difference between them, Extension of the range of ammeter & voltmeter, Numerical related to extension of range of meters. 2.2 Construction and working principles of moving Iron and moving coil instruments. 2.3 Merits and demerits, sources of error and application of these instruments.			
3.	4(11-14)	Wattmeter (Dynamometer Type)	Construction, working principle, merits and demerits of dynamometer type wattmeter, sources of error.			
4.	4(15-18)	Energy Meter (Induction type)	4.1 Construction, working principle, merits and demerits of single-phase and three-phase energy meters, numerical problems. 4.2 Errors and their compensation. 4.3 Construction and working principle of maximum demand indicator			

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5.	6(19-24)	**Measurement of Resistance, Inductance & Capacitance using Bridges**	Principal of Working of Wheatstone Bridge, limitations of Wheatstone bridge, Measurement of medium resistance by ammeter, voltmeter method, Kelvin's double bridge for measurement of low resistance,A.C. bridges: Maxwell Bridge for Inductance measurement, Wien Bridge for Capacitance measurement.			
6.	8(25-32)	**Miscellaneous Measuring Instruments**	Construction, working principle and applications of 6.1 Meggar (Insulation Resistance tester), 6.2 Earth tester 6.3 Frequency meter (Dynamometer type) 6.4 Single phase power factor meter (Electrodynamometer type). 6.5 Synchroscope, 6.6 LCR meter			
7.	8(33-40)	**Electronic Instruments**	7.1 Cathode Ray Oscilloscope: Block diagram, working principle of CRO and its various controls. Applications of CRO. 7.2 Digitalmulti-meter (only block diagram) and Applications. 7.3 Introduction and block diagram of Digital single phase and three phase Energymeters. 7.4 Introduction to Intelligent EnergyMeter, Load manager.			
8.	16(41-56)	**Transducers & Their Application in Measurement of Non-electrical Quantities**	8.1 Introduction and classification of transducers 8.2 Use of Potentiometers in displacement measurement 8.3 Working principle and applications of LVDT. 8.4 Pressure sensing devices, measurement of pressure using • LVDT and Bourdon tube arrangement • Manometer 8.5 Working principle Strain gauge and its applications in measurements temperature compensation using Strain gauge bridges. 8.6 Measurement of temperature using • Thermometers • Thermocouple• Resistance temperature detector • Thermistor • Optical Pyrometer 8.7 Electromagnetic flow meter for flow measurement 8.8 Liquid level measurement using • Floats• Resistive and Capacitive probes 7.7 Introduction to Smart Sensors.			

APPROVED	SIGN HOD/OIC
DATE ---13/02/23---	