

PLANNED SYLLABUS COVERAGE (Theory)

GP Bilaspur		Department: Electrical Engineering		Subject : EEM		
SYLLABUS COVERAGE		Course : Diploma		Duration: 3 Yrs.		
		Total Period: 56		Theory : 56		
Sr. No.	Period Nos	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
	10 (1-10)	Fundamentals of Measurements	Measurement: Significance, units, fundamental quantities and standards Classification of Instrument Systems: Null and deflection type instruments Absolute and secondary instruments Analog and digital instruments Static and dynamic characteristics, types of errors, Calibration: need and procedure Classification of measuring instruments: indicating, recording and integrating instruments. Essential requirements of an indicating instruments	Sawhney A.K., Electrical and Electronics Measurements and Instrumentation., Dhanpai Rai andn Sons	Theraja B. L., Theraja A. K., A Text Book of Electrical Technology Vol-I(Basic Electrical Engg.	
2.	12 (11-22)	Measurement of voltage and current	DC Ammeter: Basic, Multi range, Universal shunt, DC Voltmeter: Basic, Multi-range, concept of loading effect and sensitivity AC voltmeter: Rectifier type (half wave and full wave) CT and PT: construction, working and applications. Clamp-on meter.	-----do-----	-----do-----	
3.	12 (23-34)	Measurement of Electric Power	Analog meters: Permanent magnet moving coil (PMMC) and Permanent magnet moving iron (PMMI) meter, their construction, working, salient features, merits and demerits. Dynamometer type wattmeter: Construction and working Range: Multiplying factor and extension of range using CT and PT Errors and compensations. Active and reactive power measurement: One, two and three wattmeter method. Effect of Power factor on wattmeter reading in two wattmeter method. Maximum Demand indicator	-----do-----	-----do-----	

4.	8 (35-42)	Measurement of Electric Energy	Single and three phase electronic energy meter: Constructional features and working principle, Errors and their compensations. Calibration of single phase electronic energy meter using direct loading.	-----do-- ---	-----do-----	
5.	14 (43-56)	Circuit Parameter Measurement, CRO and Other Meters	Measurement of resistance: Low resistance: Kelvin's double bridge, Medium Resistance: Voltmeter and ammeter method, High resistance: Megger and Ohm meter: Series and shunt Measurement of inductance using Anderson Bridge (no derivation and phasor diagram) Measurement of capacitance using Schering bridge (no derivation and phasor diagram) Single beam/single trace CRO, Digital storage Oscilloscope: Basic block diagram, working, Cathode ray tube, electrostatic deflection, vertical amplifier, time base generator, horizontal amplifier, measurement of voltage/ amplitude/ time period/ frequency/ phase angle delay line, specifications. Other meters: Earth tester, Digital Multi-meter; L-C-R meter, Frequency meter (ferromagnetic and Weston type), Phase sequence indicator, power factor meter (single phase and three phase dynamometer type), Synchroscope, Tri-vector meter, Signal generator need, working and basic block diagram. Function generator: need, working and basic block diagram, function of symmetry.	-----do-- ---	-----do-----	

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Date:	01/8/25