



LESSON PLAN

DISCIPLINE:- ELECTRICAL ENGINEERING	SEMESTER:- 3 rd	NAME OF THE TEACHING FACULTY: PRATIK MOHANTY
SUBJECT:- ELECTRICAL AND ELECTRONIC MEASUREMENTS (EEPC205 TH:3)	NO. OF DAYS/PER WEEK CLASS ALLOTTED:- 3	SEMESTER FROM DATE:- 14-07-2025 TO DATE :-15 -11 -2025
Week	Class day	Theory
1 st	1 st	1. Fundamentals of Measurements 1.1 Measurement: Significance, units, fundamental quantities and standard
	2 nd	1.2 Classification of Instrument Systems 1.3 Null and deflection type Instruments 1.4 Absolute and secondary Instruments
	3 rd	1.5 Analog and digital Instruments
2 nd	1 st	1.6 Static and dynamic characteristics, types of errors
	2 nd	1.7 Calibration: need and procedure
	3 rd	1.8 Classification of measuring instruments: indicating, recording and integrating instruments
3 rd	1 st	1.8 Classification of measuring instruments: indicating, recording and integrating instruments
	2 nd	2. Measurement of voltage and current
	3 rd	2.1 DC Ammeter: Basic, Multi range, Universal shunt, 2.1 DC Ammeter: Basic, Multi range, Universal shunt,
4 th	1 st	2.2 DC Voltmeter: Basic, Multi-range, concept of loading effect and sensitivity
	2 nd	2.3 AC voltmeter: Rectifier type (half wave and full wave)
	3 rd	2.4 CT and PT: construction, working and applications
5 th	1 st	2.4 CT and PT: construction, working and applications
	2 nd	2.4 CT and PT: construction, working and applications
	3 rd	3. Measurement of Electric Power 3.1 Analog meters: Permanent magnet moving coil (PMMC) and , their construction, working,
6 th	1 st	3.1 Analog meters: Permanent magnet moving coil (PMMC) salient features, merits and demerits
	2 nd	3.1 Analog meters: Permanent magnet moving iron (PMMI) meter, their construction, working,
	3 rd	3.1 Analog meters: Permanent magnet moving iron (PMMI) meter, salient features, merits and demerits
7 th	1 st	3.2 Dynamometer type wattmeter: Construction and working
	2 nd	3.3 Errors and compensations of PMMI, PMMC and Dynamometer type wattmeter
	3 rd	3.3 Errors and compensations of PMMI, PMMC and Dynamometer type wattmeter
8 th	1 st	3.4 Active and reactive power measurement: One wattmeter method
	2 nd	3.4 Active and reactive power measurement: Two wattmeter method

	3 rd	3.4 Active and reactive power measurement: Three wattmeter method
8th	1 st	3.5 Effect of Power factor on wattmeter reading in two wattmeter method
	2 nd	3.6 Maximum Demand Indicator(Definition only)
	3 rd	4. Measurement of Electric Energy 4.1 Single electronic energy meter: Constructional features and working principle
10th	1 st	4.1 Three phase electronic energy meter: Constructional features and working principle
	2 nd	4.2 Errors and their compensations
	3 rd	4.3 Calibration of single-phase electronic energy meter using direct loading
11th	1 st	5. Circuit Parameter Measurement, CRO and Other Meters 5.1 Measurement of resistance 5.1.1 Low resistance: Kelvin's double bridge,
	2 nd	5.1.2 Medium Resistance: Voltmeter and ammeter method
	3 rd	5.1.3 High resistance: Megger
12th	1 st	5.1.3 High resistance: Ohm meter: Series and shunt
	2 nd	5.2 Measurement of inductance using Anderson bridge (no derivation and phasor diagram)
	3 rd	5.3 Measurement of capacitance using Schering bridge (no derivation and phasor diagram)
13th	1 st	5.4 Single beam/single trace CRO (Working principle and block diagram only)
	2 nd	5.4 Single beam/single trace CRO (Working principle and block diagram only)
	3 rd	5.5 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
14th	1 st	5.5 Digital storage Oscilloscope: measurement of voltage/ amplitude/ time period/ frequency/ phase angle delay line, specifications
	2 nd	5.6 Other meters: Earth tester, Digital Multimeter; L-C-R meter,
	3 rd	5.6 Other meters: Frequency meter (ferromagnetic and Weston type),
15th	1 st	5.6 Other meters:, Phase sequence indicator , power factor meter (single phase and three phase dynamometer type),
	2 nd	5.6 Other meters : Synchro scope, Tri-vector meter
	3 rd	5.7 Signal generator: need, working and basic block diagram.

Pratik Morant
10/7/2025
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