C. V. RAMAN POLYTECHNIC, BHUBANESWAR

LESSON PLAN
Session (2025-2026)

Discipline: ELECTRICAL ENGINEERING	**Semester:** 3RD Semester, Winter/2025	**Name of the Faculty:** RASHMI RANJAN MARTHA ASST.PROF **Email ID:** **Rashmi.martha@cvrp.edu.in**
Subject Name with code: ELECTRICAL AND ELECTRONIC MEASUREMENTS (EEPC205)	**No. of Days/week:** 03 **Total No. of Class (Required):** 45	**Start Date:14.07.2025** **End Date:15.11.2025**

Week	Class Day	Brief description of the Topic/Chapter to be taught
1st	1st	1. **Fundamentals of Measurements** Measurement: Significance, units, fundamental quantities and standards
	2nd	Classification of Instrument Systems
	3rd	Null and deflection type instruments
2nd	1st	Absolute and secondary instruments
	2nd	Analog and digital instruments
	3rd	Static and dynamic characteristics, types of errors
3rd	1st	Calibration: need and procedure
	2nd	Classification of measuring instruments: indicating, recording and integrating instruments
	3rd	Essential requirements of an indicating instruments
4th	1st	Revision
	2nd	2. **Measurement of voltage and current** DC Ammeter: Basic, Multi range, Universal shunt,
	3rd	DC Ammeter: Basic, Multi range, Universal shunt,
	1st	DC Voltmeter: Basic, Multi-range, concept of loading effect and sensitivity

5th	2nd	DC Voltmeter: Basic, Multi-range, concept of loading effect and sensitivity
	3rd	AC voltmeter: Rectifier type (half wave and full wave)
6th	1st	AC voltmeter: Rectifier type (half wave and full wave)
	2nd	CT and PT: construction, working and applications
	3rd	CT and PT: construction, working and applications
7th	1st	Quiz
	2nd	3. **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
	3rd	Analog meters: Permanent magnet moving coil (PMMC) and Permanent magnet moving iron (PMMI) meter, their construction, working, salient features, merits and demerits
8th	1st	Dynamometer type wattmeter: Construction and working
	2nd	Dynamometer type wattmeter: Construction and working
	3rd	Errors and compensations of PMMI,PMMC and Dynamometer type wattmeter
9th	1st	Active and reactive power measurement: One, two and three wattmeter method
	2nd	Effect of Power factor on wattmeter reading in two wattmeter method
	3rd	Maximum Demand indicator(Definition only)
10th	1st	Quiz
	2nd	4. **Measurement of Electric Energy** Single and three phase electronic energy meter: Constructional features and working principle
	3rd	Single and three phase electronic energy meter: Constructional features and working principle
11th	1st	Errors and their compensations
	2nd	Errors and their compensations
	3rd	Calibration of single-phase electronic energy meter using direct loading.
12th	1st	Calibration of single-phase electronic energy meter using direct loading.
	2nd	Calibration of single-phase electronic energy meter using direct loading.
	3rd	5. **Circuit Parameter Measurement, CRO and Other Meters** Measurement of resistance
13th	1st	Low resistance: Kelvin's double bridge
	2nd	Medium Resistance: Voltmeter and ammeter method

	3rd	High resistance: Megger and Ohm meter: Series and shunt
14th	1st	Measurement of inductance using Anderson bridge (no derivation and phasor diagram)
	2nd	Measurement of capacitance using Schering bridge (no derivation and phasor diagram)
	3rd	Single beam/single trace CRO (Working principle and block diagram only)
15th	1st	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
	2nd	Other meters: Earth tester, Digital Multimeter; L-C-R meter, Frequency meter (ferromagnetic and Weston type), Phase sequence indicator, power factor meter (single phase and three phase dynamometer type), Synchro scope, Tri-vector meter
	3rd	Signal generator: need, working and basic block diagram.

Signature of the Faculty

Signature of the H.O.D