

LESSON PLAN

Name of Faculty: Miss Sindhuja Panigrahi, Guest Faculty

Subject: Electrical and Electronic Measurements (E&EM) (EEPC205) TH-3

Semester: 3rd

Branch: Electrical Engineering

No of period: 45 (3hr/week)

W.E. F :- 14.07.2025 TO 15.11.2025

Week	Period	Topic To Be Covered	Teaching aid to be used
1		Fundamentals of Measurements	
	1	Measurement: Significance, units, fundamental quantities and Standards	White board, marker
	2	Classification of Instrument Systems	White board, marker
2	3	Null and deflection type instruments	White board, marker
	4	Absolute and secondary instruments	White board, marker
	5	Analog and Digital instruments	Smart Class (Interactive Panel)
3	6	Static and dynamic characteristics	White board, marker
	7	Types of errors	White board, marker
	8	Calibration: need and procedure	White board, marker
4	9	Classification of measuring instruments: indicating, recording and integrating instruments	Smart Class (Interactive Panel)
	10	Essential requirements of an indicating instruments	White board, marker
		Measurement of voltage and current	
5	11	DC Ammeter: Explanation of Basic principles & Construction	White board, marker
	12	DC Ammeter: Multi range Ammeters, Multi range with Universal shunt,	Smart Class (Interactive Panel)
	13	DC Voltmeter: Explanation of Basic principles	White board, marker
6	14	DC Voltmeter: Multi-range voltmeters,	Smart Class (Interactive Panel)
	15	DC Voltmeter: concept of loading effect and sensitivity	White board, marker
	16	AC voltmeter: Rectifier type (half wave)	White board, marker
7	17	AC voltmeter: Rectifier type (full wave)	White board, marker
	18	CT : construction, working and applications	Smart Class (Interactive Panel)
	19	PT : construction, working and applications	Smart Class (Interactive Panel)
8		Measurement of Electric Power	
	20	Analog meters: Permanent magnet moving coil (PMMC) their construction, working principle, salient features, merits and demerits	White board, marker
	21	Analog meters: Permanent magnet moving coil (PMMC) their construction, working principle, salient features, merits and demerits	Smart Class (Interactive Panel)
9	22	Analog meters: Permanent magnet moving iron (PMMI) meter their construction, working, salient features, merits and demerits	White board, marker
	23	Analog meters: Permanent magnet moving iron (PMMI) meter their construction, working, salient features, merits and demerits	Smart Class (Interactive Panel)
	24	Dynamo meter type wattmeter: Construction and working	Smart Class (Interactive Panel)
10	25	Errors and compensations of PMMI, PMMC and Dynamometer type wattmeter	Smart Class (Interactive Panel)
	26	Active and reactive power measurement: One, two and three wattmeter method	White board, marker
	27	Effect of Power factor on wattmeter reading in two wattmeter method	White board, marker
	28	Maximum Demand indicator (Definition only)	White board, marker
10		Measurement of Electric Energy	
	29	Single phase electronic energy meter: Constructional features and working principle	White board, marker
	30	Single phase electronic energy meter: Constructional features and working principle	White board, marker

11	31	three phase electronic energy meter: Constructional features and working principle	White board, marker
	32	three phase electronic energy meter: Constructional features and working principle	White board, marker
	33	Errors and their compensations of Single phase electronic energy meter	White board, marker
12	34	Errors and their compensations of three phase electronic energy meter	White board, marker
	35	Calibration of single-phase electronic energy meter using direct loading	White board, marker
		Circuit Parameter Measurement, CRO and Other Meters	
13	36	Measurement of resistance, Low resistance: Kelvin's double bridge, Medium Resistance: Voltmeter and meter method	White board, marker
	37	High resistance: Megger and Ohmmeter: Series and shunt	White board, marker
	38	Measurement of inductance using Anderson bridge (no derivation and phasor diagram) Measurement of capacitance using Schering bridge (no derivation and phasor diagram)	White board, marker
14	39	Single beam/single trace CRO (Working principle and block diagram only)	White board, marker
	40	Digital storage Oscilloscope: Basic block diagram, working, Cathode ray tube, electrostatic deflection, vertical amplifier, time base generator, horizontal amplifier,	Smart Class (Interactive Panel)
	41	Measurement of voltage/ amplitude/ time period/ frequency/ phase angle delay line, specifications.	Smart Class (Interactive Panel)
15	42	Other meters: Earth tester, Digital Multi meter	Smart Class (Interactive Panel)
	43	L-C-R meter, Frequency meter (ferromagnetic and Weston type)	Smart Class (Interactive Panel)
	44	Phase sequence indicator, power factor meter (single phase and three phase dynamo meter type), Synchroscope, Tri-vector meter	Smart Class (Interactive Panel)
	45	Signal generator: need, working and basic block diagram.	Smart Class (Interactive Panel)

14/10/21
 (GF, ELECT)

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 V. POLY.
 GAJAPATI