

**GOVERNMENT POLYTECHNIC DARLIPALI, SUNDARGARH**

ସରକାରୀ ବହୁଦୃଢ଼ି ଅନୁଷ୍ଠାନ ଦଲିପାଲି, ସୁନ୍ଦରଗଡ଼

GOVERNMENT OF ODISHA | ଓଡ଼ିଶା ସରକାର

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Department of ELECTRICAL Engg.

LESSON PLAN (2025-26)

Discipline: ELECTRICAL ENGG.	Semester: 3RD	Name of the Teaching Faculty: PARTHA SARATHI MALLICK
Subject: ELECTRICAL AND ELECTRONIC MEASUREMENTS (EEPC205)	No. of days/ per week class allotted: 3	Semester From Date : 14/07/2025 to Date: 15/11/2025 No. of Weeks: 15
Week	Class Day	Theory/ Practical Topics
1st	1st	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	Classification of measuring instruments: indicating, recording and integrating instruments
4th	1st	Essential requirements of an indicating instruments
	2nd	Measurement of voltage and current: DC Ammeter: Basic, Multi range, Universal shunt,
	3rd	DC Ammeter: Basic, Multi range, Universal shunt,
5th	1st	DC Voltmeter: Basic, Multi-range, concept of loading effect and sensitivity
	2nd	DC Voltmeter: Basic, Multi-range, concept of loading effect and sensitivity
	3rd	DC Voltmeter: Basic, Multi-range, concept of loading effect and sensitivity
6th	1st	AC voltmeter: Rectifier type (half wave and full wave)
	2nd	AC voltmeter: Rectifier type (half wave and full wave)
	3rd	CT and PT: construction, working and applications
7th	1st	CT and PT: construction, working and applications
	2nd	Measurement of Electric Power : Analog meters: Permanent magnet moving coil (PMMC) construction, working, salient features, merits and demerits
	3rd	Analog meters: Permanent magnet moving iron (PMMI) meter construction, working, salient features, merits and demerits
8th	1st	Dynamometer type wattmeter: Construction and working
	2nd	Errors and compensations of PMMI, PMMC and Dynamometer type wattmeter

	3rd	Active and reactive power measurement: One, two and three wattmeter method
9th	1st	Active and reactive power measurement: One, two and three wattmeter method
	2nd	Active and reactive power measurement: One, two and three wattmeter method
	3rd	Effect of Power factor on wattmeter reading in two wattmeter method
10th	1st	Maximum Demand indicator(Definition only)
	2nd	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	Single and three phase electronic energy meter: Constructional features and working principle
	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	Circuit Parameter Measurement, CRO and Other Meters: Measurement of resistance: Low resistance: Kelvin's double bridge
13th	1st	Medium Resistance: Voltmeter and ammeter method
	2nd	High resistance: Megger and Ohm meter: Series and shunt
	3rd	Measurement of inductance using Anderson bridge (no derivation and phasor diagram) Measurement of capacitance using Schering bridge (no derivation and phasor diagram)
14th	1st	Single beam/single trace CRO (Working principle and block diagram only)
	2nd	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.
	3rd	Other meters: Earth tester, Digital Multimeter; L-C-R meter
15th	1st	Other meters: Frequency meter (ferromagnetic and Weston type), Phase sequence indicator
	2nd	power factor meter (single phase and three phase dynamometer type), Synchro scope, Tri-vector meter
	3rd	Signal generator: need, working and basic block diagram.

Prepared By-
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