



SYNERGY SCHOOL OF ENGINEERING
DEPARTMENT OF ELECTRICAL ENGINEERING

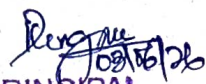
Discipline: Electrical Engineering	Semester: - 3 RD Sem EE	Name of the teaching faculty: DR. ANANTA KUMAR SAHOO
Subject: - Electrical and electronic measurements	No. of Days/week class Allotted: -3	No. of weeks: -15 SESSION-2026-2027 WINTER Starting date- 01.07.2026 Closing date- 05.11.2026
No. of week	No. of class	Topic to be Taught
1	1 ST	Measurement: Significance, units, fundamental quantities and standards
	2 ND	Classification of Instrument Systems
	3 RD	Null and deflection type instruments
2	1 ST	Analog and digital instruments
	2 ND	Absolute and secondary instruments
	3 RD	Static and dynamic characteristics, types of errors
3	1 ST	Calibration: need and procedure
	2 ND	Classification of measuring instruments: indicating, recording and integrating instruments
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4	1 ST	Essential requirements of an indicating instruments
	2 ND	DC Ammeter: Basic,
	3 RD	Multi range DC Ammeter
5	1 ST	Universal shunt, DC Ammeter
	2 ND	DC Voltmeter: Basic, Multi-range,
	3 RD	Concept of loading effect and sensitivity
6	1 ST	AC voltmeter: Rectifier type (half wave)
	2 ND	AC voltmeter: Rectifier type (full wave)
	3 RD	CT : construction, working and applications
7	1 ST	PT: construction, working and applications
	2 ND	Analog meters: Permanent magnet moving coil (PMMC) and .
	3 RD	Permanent magnet moving iron (PMMI) meter, their construction, working, salient features, merits and demerits
8	1 ST	Dynamometer type wattmeter: Construction and working
	2 ND	Errors and compensations of PMMI
	3 RD	PMMC and Dynamometer type wattmeter
9	1 ST	Active and reactive power measurement:
	2 ND	One, two and three wattmeter method
	3 RD	Effect of Power factor on wattmeter reading in two wattmeter method
10	1 ST	Maximum Demand indicator(Definition only)
	2 ND	Single phase electronic energy meter: g.
	3 RD	Three phase electronic energy meter
11	1 ST	Constructional features and working principle
	2 ND	Errors and their compensations
	3 RD	Errors and their compensations

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12	1 ST	Calibration of single-phase electronic energy meter using direct loading
	2 ND	Calibration of single-phase electronic energy meter using direct loading
13	3 RD	Measurement of resistance
	1 ST	Low resistance: Kelvin's double bridge,
	2 ND	Medium Resistance: Voltmeter and ammeter method
14	3 RD	High resistance: Megger and Ohm meter: Series and shunt
	1 ST	Measurement of inductance using Anderson bridge (no derivation and phasor diagram)
	2 ND	Measurement of capacitance using Schering bridge (no derivation and phasor diagram)
15	3 RD	Single beam/single trace CRO (Working principle and block diagram only)
	1 ST	Digital storage Oscilloscope
	2 ND	Other meters: Earth tester, Digital Multimeter, L-C-R meter, Frequency meter (ferromagnetic and Weston type), Phase sequence indicator, power factor met
	3 RD	Signal generator: need, working and basic block diagram.


 21/06/26
 Prepared by


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