



SIDDHARTH INSTITUTE OF ENGINEERING AND TECHNOLOGY, KORAPUT
DEPARTMENT OF ELECTRICAL ENGINEERING

LESSON PLAN

Name of the Course : TH-3 : ELECTRICAL AND ELECTRONIC MEASUREMENT			
Name of the Faculty: Er. MONALISHA HATI			
Semester from date : 01.07.2026 TO 05.11.2026			
Course Code :	EEPC205	Semester :	3 rd
Total Periods:	45 Periods	Examination :	3Hrs
Theory Periods :	45 Hrs.	Progressive Assessment :	30
Lecture :	3Hrs/week	End Term Exam :	70
Credit :	3	Total Marks :	100

VISION:

To create competent and industry ready Electrical Diploma Engineers with professional and social values to meet future challenges.

MISSION:

- To prepare diploma holders through “qualitative competency-based education system” to compete with national requirement along with core values.
- To produce dynamic Electrical Engineers to serve the society and industry.
- To develop leadership qualities, communication skills, critical thinking and attitude for lifelong learning.

PROGRAM EDUCATIONAL OBJECTIVES:

PEO1	Applying technical knowledge and skills learned in the field of Electrical Engineering to excel in professional and/or higher education.
PEO2	To provide students an excellent academic environment and make them aware the needs of Society and Industry to become a successful Professional/Entrepreneur.
PEO3	To engage in lifelong learning, career enhancement to adopt to emerging technologies.

COURSE OUTCOME:

CO1	Explain the construction and working principle of different types of electrical measuring instruments
CO2	Connect different types of electrical measuring instruments to measure various electrical parameters
CO3	Select the right instruments for the measurement of voltage, current, power and energy. □
CO4	Apply the appropriate technique to measure resistance, inductance and capacitance. □

TOPIC WISE DISTRIBUTION OF PERIODS

Unit No.	Topics	Periods
I	Fundamentals of Measurements	10
II	Measurement of voltage and current	09
III	Measurement of Electric Power	09
IV	Measurement of Electric Energy	07
V	Circuit Parameter Measurement, CRO and Other Meters	10



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Week	Day	Theory Topic	Corresponding CO
1 st	TUESDAY	NO CLASS	
	WEDNESDAY	Measurement: Significance, units, fundamental quantities and standards	CO1
	THURSDAY	Classification of Instrument Systems	CO1
2 nd	TUESDAY	Null and deflection type instruments	CO1
	WEDNESDAY	Absolute and secondary instruments	CO1
	THURSDAY	Analog and digital instruments	CO1
3 rd	TUESDAY	Static characteristics, types of errors	CO1
	WEDNESDAY	Dynamic characteristics, types of errors	CO1
	THURSDAY	Calibration: need and procedure	CO1
4 th	TUESDAY	Classification of measuring instruments: indicating, recording and integrating instruments	CO1
	WEDNESDAY	Essential requirements of an indicating instruments	CO1
	THURSDAY	DC Ammeter: Basic, Multi range, Universal shunt,	CO2
5 th	TUESDAY	DC Voltmeter: Basic, Multi-range	CO2
	WEDNESDAY	Concept of loading effect and sensitivity	CO2
	THURSDAY	AC voltmeter: Rectifier type (half wave)	CO2
6 th	TUESDAY	AC voltmeter: Rectifier type (full wave)	CO2
	WEDNESDAY	CT : construction, working and applications	CO2
	THURSDAY	CT : construction, working and applications	CO2
7 th	TUESDAY	PT: construction, working and applications	CO2
	WEDNESDAY	PT: construction, working and applications	CO2
	THURSDAY	Analog meters: Permanent magnet moving coil (PMMC) and their construction, working, salient features, merits and demerits	CO3
8 th	TUESDAY	Analog meters: Permanent magnet moving iron (PMMI) meter & their construction, working, salient features, merits and demerits	CO3
	WEDNESDAY	Dynamometer type wattmeter: Construction and working	CO3
	THURSDAY	Errors and compensations of PMMI Dynamometer type wattmeter	CO3
9 th	TUESDAY	Errors and compensations of PMMC and Dynamometer type wattmeter	CO3
	WEDNESDAY	Active power measurement: One, two and three wattmeter method	CO3
	THURSDAY	Reactive power measurement: One, two and three wattmeter method	CO3
10 th	TUESDAY	Effect of Power factor on wattmeter reading in two wattmeter method	CO3
	WEDNESDAY	Maximum Demand indicator(Definition only)	CO3

	THURSDAY	Single phase electronic energy meter: Constructional features and working principle	CO4
11 th	TUESDAY	Single phase electronic energy meter: Constructional features and working principle	CO4
	WEDNESDAY	Three phase electronic energy meter: Constructional features and working principle	CO4
	THURSDAY	Three phase electronic energy meter: Constructional features and working principle	CO4
12 th	TUESDAY	Errors and their compensations	CO4
	WEDNESDAY	Calibration of single-phase electronic energy meter using direct loading.	CO4
	THURSDAY	Calibration of single-phase electronic energy meter using direct loading.	CO4
13 th	TUESDAY	Measurement of resistance - Low resistance: Kelvin's double bridge,	CO5
	WEDNESDAY	Measurement of resistance - Medium Resistance: Voltmeter and ammeter method	CO5
	THURSDAY	Measurement of resistance- High resistance: Megger and Ohm meter: Series and shunt	CO5
14 th	TUESDAY	Measurement of inductance using Anderson bridge (no derivation and phasor diagram)	CO5
	WEDNESDAY	Measurement of capacitance using Schering bridge (no derivation and phasor diagram)	CO5
	THURSDAY	Single beam/single trace CRO (Working principle and block diagram only)	CO5
15 th	TUESDAY	Digital storage Oscilloscope: Basic block diagram, working	CO5
	WEDNESDAY	Cathode ray tube, electrostatic deflection, vertical amplifier, time base generator	CO5
	THURSDAY	Horizontal amplifier, measurement of voltage/ amplitude/ time period/ frequency/ phase angle delay line, specifications.	CO5
16 th	TUESDAY	Other meters: Earth tester, Digital Multimeter; L-C-R meter, Frequency meter (ferromagnetic and Weston type)	CO5
	WEDNESDAY	Phase sequence indicator, power factor meter (single phase and three phase dynamometer type), Synchroscope, Tri-vector meter	CO5
	THURSDAY	Signal generator: need, working and basic block diagram	CO5

M. H. J. S.
22/06/2026

Signature of Faculty Concerned
(Electrical Engg.)

K. S. S. S.
22/6/26

Head of Department
(Electrical Engg.)

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S. S. S. S.
22/6/2026
Principal

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