

Branch Name:	Electrical Engineering
Program Code:	ET109
Course Name:	Electrical Measurement and Measuring Instruments Practical
Course Code:	2ET1090303P
Pre-requisite Course:	Fundamental Knowledge of Electrical Quantities & Measuring Instruments

Course Objectives:

1. Electrical Measurement & Measuring Instruments is a subject where a student will learn the generalized theory of Measurement of Various parameters (like Resistance, Inductance and Capacitance) which will help to know about measurement.
2. The major objective of the subject is to use the measuring instruments practically & to understand how different types of meter's work and their construction.
3. To make the students familiar with the impact of various A.C bridges, Meters, Instruments.

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								Total (Marks)
					Theory (Marks)				Practical (Marks)				
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
1	-	-	2	2	-	-	-	-	10	25	10	25	50

Course Contents:

Sr. No	Detail of Practical	Contact Hours
1	Measurement of Low resistance using Kelvin Double bridge.	04
2	Measurement of Medium resistance using Wheatstone's Bridge.	04
3	Measurement of Insulation resistance using Megger.	02
4	Measurement of Unknown Inductance by Maxwell's Bridge.	02
5	Measurement of Unknown Capacitance by Maxwell's Bridge.	04
6	Measurement of Inductance of a given coil by Anderson's Bridge.	02
7	To Study the Working of De Sauty's Bridge and Compare the Capacitance of Two Capacitors.	04
8	To Study the Working of Schering Bridge for capacitance measurement.	02
9	Measurement of Capacitance by Wien's Bridge. For (a) Series Connection (b) Parallel Connection.	04

Reference Books:

1. Electrical Measurement & Measuring Instruments, Wheller Publication - E.W. Golding & Widdies.
2. A course in Electrical & Electronic Measurement and Instrumentation, S.K. Kataria & Sons. – J.B. Gupta.

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Acquire the knowledge regarding measurement of various quantity and will be able to carry out various experimental studies about measurement.	1 Remembering
CLO2	Capable to measure electrical quantity like resistance, inductance, capacitance, power etc. using various measuring instruments	2 Understanding 3 Applying
CLO3	Capable to calibrate the measuring devices such as meters.	3 Applying 4 Analyze
CLO4	Know working principle, performance and applications of all bridges used for electrical measurement.	1 Remembering
CLO5	Formulate and solve the problem of electrical power measurement.	5 Evaluate
CLO6	Acquire knowledge regarding electronics measurement.	2 Understanding

Mapping of CLOs with POs & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	L				M						M				L	
CLO2			H				L	H		M		L		L		H
CLO3		M			L				M					M		L
CLO4	L		H		M							M				L
CLO5		M			L				M						M	L
CLO6				H			H	L	M		M	M	L		H	L

H: High, M: Medium, L: Low