



Maharaja Agrasen Institute of Technology

(Approved by AICTE & Affiliated to GGSIP University, New Delhi)

PSP area, Plot No.-1 Sector-22, Rohini, New Delhi – 110085

Ph.No. : 011-27582095 , 65151162/63 , 65162001

Website: www.mait.ac.in

Department of Electrical & Electronics Engineering Electrical and Electronics Measuring Instruments (EEC-305)

ACADEMIC PLAN FOR SEMESTER-V 2023

S.No.	TOPICS TO BE COVERED	Total No. of Lectures (42)	CO
UNIT-I [Power and Energy Measurement]			
1	Instrument Transformers: CT and PT, Ratio and phase angle errors.	2	CO1
2	Measurement of Power :Single phase and three phase dynamometer type wattmeter, LPF and UPF	2	
3	Expression for deflecting and control torques , Type of P.F. Meters, dynamometer and moving iron type, Frequency meters, Resonance type and Weston type, Synchrosopes.	3	
4	Measurement of Energy :Single phase and three phase induction type energy meter, driving and braking torques	2	
5	Errors and compensations, testing by phantom loading, trivector meter, maximum demand meters.	2	
UNIT-II [Potentiometer and Bridges]			
7	Principle of operation and types of D.C./A.C. potentiometers, application of D.C./A.C. Potentiometers.	2	CO2
8	Bridges for measuring low ,medium and high resistance	2	
9	Carey Foster's bridge, Kelvin's double bridge, Megohm bridge, Megger	2	

10	A.C. Bridges: Measurement of inductance and capacitance , Maxwell's bridge , Hay's bridge , Anderson's bridge, Owen's bridge , Heaviside bridge and its modification	3	
11	Desauty bridge, Wein bridge , Schering bridge	2	
After Mid Term			
UNIT-III [Display Devices and Recorders]			
13	Introduction of various display devices, LCD, LED and plasma display	2	CO3
14	CRO & its applications, triggered CRO, sampling oscilloscope	2	
15	Recorders: Requirement of recording data, selection of recorder for a particular application	2	
16	Analog, graphic, strip chart, galvanometric, circular chart, XY, digital recorders, single point and multipoint recorders	2	
17	Types of Printers, Drum type printer, dot matrix type printer , Ink-jet and Laser jet printers	2	
UNIT-IV [Transducers]			
18	Introduction and Classification of Transducers. Primary and secondary sensing elements	2	CO4
19	Working principle and applications of LVDT, RTD, Thermistor, piezoresistors	3	
20	Inductive transducers, capacitance transducers, Angular movement transducers	2	
21	Feedback transducer system: Inverse transducer, self-balancing transducer Servo-operated manometer , feedback pneumatic load cell , integrating servo	3	

Course Objectives

C.305.1	Identify and classify various types of instruments for power and energy measurement.
C.305.2	Develop the knowledge of working and applications of potentiometers and bridges.
C.305.3	Ability to apply proper recorder and printer in measurement.
C.305.4	Describe working principle selection criteria and application of various transducers in measurement system.

