

1.	Title of the course	Electronic Instrumentation and Measurement
2.	Course number	EE212M
3.	Structure of credits (L-T-P-C)	3-0-2-4
4.	New course/modification to	Modified with EE306M/PRINCIPLES OF MEASUREMENT
5.	To be offered by	Electrical Engineering
6.	Prerequisite	None
7.	Course Objective(s): To explain the basic principles of electronic measurements. To provide a hands-on experience of commonly used electronic measuring instruments.	
8.	Course Content: Units, significant digits; Errors in measurements: systematic and random errors, propagation of errors; Overview of analog indicating instruments; Digital methods of measurement: counter-timer, analog-to-digital converters, digital multimeter, data-acquisition systems; Graphical methods of measurement: oscilloscopes; Null balance method: dc and ac bridges; Voltage and current scaling: current transformers and voltage transformers; Sensors: resistive, capacitive, inductive, piezoelectric, magnetic and associated signal conditioning circuits.	
9.	Textbook(s): 1. Bell D A, Electronic Instrumentation and Measurements, 3rd edition, Oxford (2013). 2. Robert B N, Introduction to Instrumentation and Measurements, 3rd edition, CRC Press (2018).	
10.	Reference(s): 1. Frank E, Electrical Measurement Analysis, Mc-Graw Hill (1959). 2. Ramon P, Sensors and Signal Conditioning, 2nd edition, Wiley (2013). 3. Sawhney A K, A Course in Electrical and Electronic Measurements and Instrumentation, 4th edition, Dhanpat Rai (2016).	