1.	Title of the course	Mechanical Measurements and Metrology
2.	Course number	ME213L
3.	Structure of credits (L-T-P-C)	3-0-0-3
4.	New course/modification to	Modified with ME304M/MECHANICAL MEASUREMENTS AND METROLOGY
5.	To be offered by	Mechanical Engineering
6.	Prerequisite	None
7.	**Course Objective(s):** To identify and estimate measurement errors and suggest suitable techniques to minimize them. To interpret the characteristics of measuring instruments and apply suitable methods of measurement for physical quantities such as force, pressure, temperature, velocity, torque, vibration, etc. To discuss suitable methods and devices for dimensional, geometrical and surface roughness measurements, and designing the limit gauges.	
8.	**Course Content:** Mechanical measurements: errors in measurements, statistical analysis of data, regression analysis, correlation, estimation of uncertainty and presentation of data, design of experiments; Measurement of field quantities like temperature, pressure, force, torque, velocity; Measurement of derived quantities; Measurement of thermos-physical properties, radiation properties of surfaces, vibration and noise, computer assisted data acquisition, data manipulation and presentation; Metrology: linear and angular measurements, tolerances, comparators, inspection of assembly and transmission elements, surface roughness measurement, geometric form measurement, alignment and practical tests, interferometry, gauge length interferometer.	
9.	**Textbook(s):** 1. Doebelin E O, Measurement Systems: Application and Design, 4th Edition, McGraw Hill Higher Education (1989). 2. Shotbolt C S and Galyer J, Metrology for Engineers, Cassell Publications, 5th Edition (1990).	
10.	**Reference(s):** 1. Beckwith G and Thomas G, Mechanical Measurements, 6th Edition, Pearson Education (2013). 2. Smith G T, Industrial Metrology, Springer (2002).	