1.	Title of the course	Mechanical Measurements and Metrology
2.	Course number	ME304M
3.	Structure of credits	3-0-2-4
4.	Offered to	UG
5.	New course/modification to	Modification To ME3107/8
6.	To be offered by	Department of Mechanical Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	**Course Objective(s):** This course is designed to enable the student to identify and estimate measurement errors and suggest suitable techniques to minimise them, interpret characteristics of measuring instruments, apply suitable methods of measurement while measuring field quantities such as force, pressure, temperature, velocity, torque, vibration etc., suggest suitable methods and devices for dimensional, geometrical and surface roughness measurements, design limit gauges.	
10.	**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, data presentation; Metrology: Linear and angular measurements, limits, fits, tolerances and gauging, comparators, measurement of screw thread and gear, surface roughness measurement, geometric form measurement, alignment and practical tests, interferometry, gauge length interferometer; Lab component: Measurement of physical quantities, dimensions, form and surface roughness.	
11.	**Textbook(s):** 1. Doebelin E O, *Measurement Systems, Application and Design*, 4th Edition, McGraw Hill Higher Education (1989). 2. Hume K J, *Engineering Metrology*, 3rd Edition, TBS The Book Service Ltd (1970).	
12.	**Reference(s):** 1. Beckwith G and Thomas G, *Mechanical Measurements*, 6th Edition, Pearson Education (2013). 2. Czichos H, Saito T and Smith L E, *The Springer handbook of metrology and Testing*, 2nd Edition, Springer (2011). 3. Smith G T, *Industrial Metrology*, 1st Edition, Springer (2002).	