1.	Title of the course	Experimental Methods for Engineers
2.	Course number	ME505M
3.	Structure of credits	2-0-2-3
4.	Offered to	PG
5.	New course/modification to	Modification To ME5022/21
6.	To be offered by	Department of Mechanical Engineering
7.	To take effect from	July 2022
8.	Prerequisite	CoT
9.	**Course Objective(s):** To introduce different measurement techniques for primary quantities and derived quantities. To estimate uncertainty in measurements and analyze experimental data statistically.	
10.	**Course Content:** Introduction to measurements; Measurement categories, primary and derived quantities, intrusive and non-intrusive methods; Analysis of experimental data: types of errors, uncertainty analysis, propagation of uncertainty; Statistical analysis of experimental data: normal error distributions (confidence interval and level of significance, Chauvenet's criterion), Chi-square test of goodness of fit, method of least squares (regression analysis, correlation coefficient), multivariable regression, graphical analysis and curve fitting; Static and dynamic characteristics; System response, first and second order systems and analysis; Temperature, pressure and flow rate measurement; Force, torque and strain measurements; Non-intrusive and optical measurement techniques; Experiments related to measuring different parameters.	
11.	**Textbook(s):** 1. Holman J P, *Experimental Methods for Engineers*, 7th Edition, McGraw Hill (2017). 2. Vekatesan S P, *Mechanical Measurements*, 2nd Edition, Springer Nature (2021).	
12.	**Reference(s):** 1. Leinhard J H, Beckwith T G and Marangoni R D, *Mechanical Measurements*, 6th Edition, Pearson (2020).	