

1.	Title of the course	Materials and Measurements Laboratory
2.	Course number	ME314P
3.	Structure of credits (L-T-P-C)	0-0-3-2
4.	New course/modification to	New
5.	To be offered by	Mechanical Engineering
6.	Proposed by	BALAJI S
7.	Prerequisite	None
8.	<b>Course Objective(s):</b> To perform experiments related to material science and engineering, mechanical measurements and metrology, manufacturing technology.	
9.	<b>Course Content:</b> Metallography sample preparation; examination of the microstructure of ferrous samples; Quantitative metallography and image analysis; Measurement of moulding sand properties; Gas tungsten arc welding and gas metal arc welding; Non-destructive testing evaluation of cast and welded products; 3D Printing; Hand tools; Heat treatment of steels; Surface roughness tester; Coordinate measuring machine; Autocollimator; Thermocouple and resistance temperature detector calibration; Discharge coefficient of venturi meter; Dead-weight tester for pressure gauge calibration.	
10.	<b>Textbook(s):</b> 1. Callister W D, Materials Science and Engineering, 2nd Edition, Wiley (2014). 2. Groover M P, Fundamentals of Modern Manufacturing, 4th Edition, John Wiley and Sons (2010).	
11.	<b>Reference(s):</b> 1. Hume K J, Engineering Metrology, 3rd Edition, The Book Service Ltd. (1970). 2. Avner S H, Introduction to Physical Metallurgy, 2nd Edition, McGraw Hill Education (2017). 3. Beckwith G and Thomas G, Mechanical Measurements, 6th Edition, Pearson Education (2013).	