

1.	Title of the course	Design and Manufacturing Laboratory-II
2.	Course number	ME526P
3.	Structure of credits	0-0-3-2
4.	Offered to	PG
5.	New course/modification to	Modification To ME5292/19
6.	To be offered by	Department of Mechanical Engineering
7.	To take effect from	January 2022
8.	Prerequisite	Nil
9.	Course Objective(s): To apply reverse engineering concepts to fabricate parts using additive manufacturing process. To measure the quality of machined parts for their dimensional, geometrical and surface roughness requirements.	
10.	Course Content: Part-programming and CNC turning; Part-programming and CNC milling; Wire electric discharging machining of difficult-to-cut materials; Effect of process parameters on weld bead quality in CMT process; Reverse engineering of end-user part using 3D scanning and additive manufacturing; Part quality inspection using CMM and surface roughness tester for machined parts; Static analysis of a connecting rod; Bucking analysis of slender beams; Modal analysis of an automotive chassis; Transient analysis of a wind turbine blade subjected to wind load.	
11.	Textbook(s): 1. Chandrupatla T R and Beligundu A D, <i>Introduction to Finite Elements in Engineering</i> , 1st Edition, Prentice Hall (1997). 2. Koren Y, <i>Computer control of manufacturing systems</i> , 1st Edition, Tata McGraw Hill (2009).	
12.	Reference(s): 1. Hume K J, <i>Engineering Metrology</i> , 1st Edition, The Book Service Ltd (1970). 2. Rao P N, <i>Manufacturing Technology Vol – 2: Metal Cutting and Machine Tools</i> , 2nd Edition, Tata McGraw Hill (2009).	