

1.	Title of the course	Foundry and Welding Processes
2.	Course number	ME214L
3.	Structure of credits (L-T-P-C)	3-0-0-3
4.	New course/modification to	Modified with ME206M/MANUFACTURING TECHNOLOGY
5.	To be offered by	Mechanical Engineering
6.	Proposed by	AJAY KUMAR
7.	Prerequisite	None
8.	<b>Course Objective(s):</b> To develop in-depth understanding on the manufacturing processes namely casting and welding. To analyze various nondestructive examination methods to detect the defects in the manufactured components.	
9.	<b>Course Content:</b> Foundry: moulding materials and their requirements; Patterns: classifications and pattern materials; Casting methods: sand casting, investment casting, pressure die casting, centrifugal casting, continuous casting, thin roll casting, stir casting, squeeze casting; Mould design; Casting defects and their remedies; Microstructure and property correlation; Casting simulations; Welding processes: classification of welding processes, welding arc, arc welding power sources, gas welding, shielded metal arc welding, gas tungsten arc welding, gas metal arc welding, flux cored arc welding, submerged arc welding, resistance welding, electron beam and laser welding, solid state welding, soldering and brazing, adhesive bonding; Welding defects; Safety in welding; Non-destructive testing (NDT): principle and application of common non-destructive examination methods, die penetrant testing, magnetic particle testing, ultrasonic testing and radiographic testing of castings and weldments.	
10.	<b>Textbook(s):</b> 1. Groover M P, Fundamentals of Modern Manufacturing, 4th Edition, John Wiley and Sons (2010). 2. Rao P N, Manufacturing Technology, 4th Edition, Tata McGraw Hill (2013).	
11.	<b>Reference(s):</b> 1. Kalpakjian S and Schmid S R, Manufacturing Engineering and Technology, 6th Edition, Pearson (2009). 2. O'Brien R L, Welding Processes, Volume 2, 8th Edition, American Welding Society (1995). 3. Parmar R S, Welding Processes and Technology, 3rd Edition, Khanna Publications (2003).	