

MECH3710 Manufacturing Processes and Systems

Course Code: MECH 3710	Course Title: Manufacturing Processes and Systems	
Required Course Or Elective Course: Elective	Terms Offered (Credits): Fall or Spring (3 credits)	
Faculty In Charge: David Lam	Pre/Co-Requisites: MECH2010, MECH2410, MECH3520	
Course Structure: Lecture – 2 days per week, 3 hours; Lab – 1 day per week, 3 hours		
Textbook/Required Material: 1. Lecture Notes 2. Reference Book: Principles of Modern Manufacturing: Materials, Processes, and Systems, Mikell P. Groover		
Course Description: This is a required course for the BEng in Mechanical Engineering with Option in Design.		
Course Topics: 1. Overview on manufacturing 2. Process and production planning and control 3. Manufacturing material properties 4. Surface and tolerances 5. Rapid prototyping 6. Metal casting 7. Plastic and Rubber shaping 8. Powder metallurgy 9. Ceramic processing 10. Metal forming 11. Machining product design 12. Coating and depositions		
Course Objectives:	<ol style="list-style-type: none"> 1. To introduce the relationships among the engineering material properties and process variables in a given manufacturing process. 2. To help students understand the principles of traditional and recently developed manufacturing processes. 3. To provide process characteristics, capabilities and limitations; related machinery and equipment. 4. To introduce the automation and common aspects of manufacturing, including metrology and quality assurance. 	
Course Outcomes:	<ol style="list-style-type: none"> A. To be capable to identify manufacturing process according to given products. B. To master formula and detail flexibility in solving practical problems. C. To become expert to design and implement the manufacturing processes for different industrial tasks. 	
Assessment Tools:	Homework Assignments	20%
	Lab Assignments	10%
	Mid-term and Final Examinations	70%