

MM 206E Manufacturing Processes				DEPARTMENT OF MECHANICAL ENGINEERING					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project /Field Study	Homework	Other	Total	Credit	ECTS Credit
4	42	14	10	-	14	30	110	4	5.0
Language	English								
Compulsory / Elective	Compulsory								
Prerequisites	None								
Course Contents	Production of pig iron, cast iron and steel. Production of nonferrous metals. Foundry. Design of cast workparts. Contemporary casting processes, special and die casting. Conventional and modern welding processes. Hot and cold working of metals. Principles of plastic deformation. Sheet Metal Working: Piercing,/blanking, deep drawing. Powder metallurgy. Machinability, cutting tools; tool life, tool geometry and tool materials. Methods of metal cutting. Turning, milling, drilling, reaming and grinding operations. Engineering metrology and quality control; basic terminology, some measuring instruments and errors of measurement.								
Course Objectives	Understanding of basic principles and capabilities of commonly used manufacturing processes in industry								
Learning Outcomes and Competences	To gain the knowledge about casting, metal working, machining methods, powder metallurgy, welding techniques and the principles of dimension measurement devices.								
Textbook and /or Reference	1) P. F. Ostwald and J. Munoz, Manufacturing Processes and Systems (9th Edition), John Wiley and Sons Ltd., 1997, New York, ISBN: 0-471-04741-4 (Old edition of the book: B. H. Amstead, P. H. Ostwald and M. L. Begeman, Manufacturing Processes, (8th Edition), John Wiley and Sons Ltd., 1987, ISBN:0-471-85403-4). 2) E. P. Degarmo, J.T. Black and R. A. Kohser, 'Materials and Processes in Manufacturing', Prentice Hall Int., New Jersey, 1997, ISBN: 0-13-261371-9 3) M. P. Groover, 'Fundamentals of Modern Manufacturing', Prentice Hall Int., New Jersey, 1996, ISBN: 0-13-312182-8.								
Assessment Criteria						If any, mark as (x)		Percentage (%)	
	Midterm Exams					X		50	
	Quizzes								
	Homeworks					X		10	
	Projects								
	Term Paper								
	Laboratory Work								
	Other								
	Final Exam					X		40	
Instructors	Assoc.Prof. Mustafa YURDAKUL, Assist.Prof. Yusuf USTA								
Week	Subject								
1	Foundry and Special Casting Processes: Sand casting, die casting, investment casting, centrifugal casting								
2	Foundry and Special Casting Processes: Sand casting, die casting, investment casting, centrifugal casting								
3	Foundry and Special Casting Processes: Sand casting, die casting, investment casting, centrifugal casting								
4	Welding: Classification, arc welding, resistance welding, gas welding, other welding processes								
5	Welding: Classification, arc welding, resistance welding, gas welding, other welding processes								
6	Cold and Hot Working of Metals: Definitions, rolling, forging, extrusion, wire drawing, other plastic deformation processes								
7	Sheet Metal Working: Piercing,/blanking, deep drawing.								
8	Powder Metallurgy: Powder production, pressing, sintering, applications								
9	Metal Cutting: Cutting theory, cutting tools, chip formation, cutting fluids, machinability, tool life								
10	Metal Cutting: Cutting theory, cutting tools, chip formation, cutting fluids, machinability, tool life								
11	Metal Cutting: Cutting theory, cutting tools, chip formation, cutting fluids, machinability, tool life								
12	Metal Cutting Operations and machine tools: Turning, milling, drilling, grinding								
13	Metal Cutting Operations and machine tools: Turning, milling, drilling, grinding								
14	Metrology: Terminology, basic linear measurements								