

MM 558 Nontraditional Machining Processes				MECHANICAL ENGINEERING DEPARTMENT					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project/Field Study	Homework	Other	Total	Credit	ECTS credit
1,2	32	10			20	126	188	3	7.5
Language	Turkish								
Compulsory / Elective	Optional								
Prerequisites	-								
Course Contents	A brief overview and evaluation of nontraditional manufacturing processes and their comparison to traditional manufacturing processes. Classification of nontraditional machining processes according to energy used in material removal and overview of process principles, equipment, machining parameters, process capabilities and applications. Mechanical energy: Ultrasonic machining; abrasive jet machining, water jet machining. Electrochemical energy: Electrochemical machining, electrochemical grinding, electrochemical honing. Chemical energy: Chemical machining. Thermal energy: Electric discharge machining (EDM) wire EDM, laser beam machining, plasma machining.								
Course Objectives	To teach important nontraditional machining techniques which are getting popular nowadays.								
Learning Outcomes and Competences	To be familiar with application fields, advantages and limitations of the nontraditional methods, and possible use of these techniques in future professional life.								
Textbook and /or Reference	G. F. Benedict, Nontraditional Manufacturing Processes, Marcel Dekker, Inc., New York, 1987, ISBN: 0-8247-7352-7. P. C. Pandey and H. S. Shan, Modern Machining Processes, Tata-McGraw Hill Comp., New Delhi, 1988, ISBN: 0-07-096553-6.								
Assessment Criteria					If any, mark as (X)		Percentage (%)		
	Midterm Exams				X		40		
	Quizzes								
	Homeworks								
	Projects								
	Term Paper				X		20		
	Laboratory Work								
	Other								
Final Exam				X		40			
Instructors									
Week	Subject								
1	A brief overview and evaluation of nontraditional manufacturing processes and their comparison to traditional manufacturing processes.								
2	Classification of nontraditional machining processes according to energy used in material removal and overview of process principles, equipment, machining parameters, process capabilities and applications.								
3	Mechanical energy: Ultrasonic machining;								
4	Abrasive jet machining,								
5	Water jet machining.								
6	Electrochemical energy: Electrochemical machining,								
7	Electrochemical grinding, electrochemical honing.								
8	Chemical energy: Chemical machining.								
9	Thermal energy: Electric discharge machining (EDM) wire EDM,								
10	Electric discharge machining (EDM)								
11	Electric discharge machining (EDM), Wire EDM								
12	Laser beam machining								
13	Laser beam machining								
14	Plasma machining								