

MM 529 Composite Materials				MECHANICAL ENGINEERING DEPARTMENT					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project/Field Study	Homework	Other	Total	Credit	ECTS credit
1,2	42					146	188	3	7.5
Language	Turkish								
Compulsory / Elective	Optional								
Prerequisites	-								
Course Contents	Definition and classification of composite materials, dispersion strengthened composites, particulate and fiber reinforced composites, glass-fiber reinforced plastics (GFRP); properties of polymers and reinforcements, production techniques, laminate theory, test methods. Metal matrix composites (MMC); matrix alloys and reinforcements, reactions at the interface of fiber/matrix, production techniques, test methods.								
Course Objectives	Teaching how to manage an effective scientific writing and prepare and present it as an effective presentation using various tools.								
Learning Outcomes and Competences	Learning to organization of a scientific writing, citing references using a formal format; converting the text to a presentation format, effective use and organization of screen for the presentation.								
Textbook and /or Reference	1.Compozite materials, Science and Engineering, 2nd ed.,Krishan K.Chawla, Spring-Verlag New York Inc. (1998). 2.Mechanics of compozite Materials, 2nd ed.,Robert M.Jones,Taylor & Francis Inc.Phi. (1999). 3.Laminar compozites, George H. Staab, Butterworth-Hinemann,Boston (1999). 4.Stress Analysis of Fiber_Reinforced Compozite Materials, M.H.Hyer, McGraw-Hill Inc.,Boston (1998). 5.Principles of Compozite Material Mechanichs, Ronald F.Gibson, McGraw-Hill Book Co.-Singapore (1994)								
Assessment Criteria					If any, mark as (X)		Percentage (%)		
	Midterm Exams				X		40		
	Quizzes								
	Homeworks								
	Projects								
	Term Paper								
	Laboratory Work								
	Other								
Final Exam				X		60			
Instructors									
Week	Subject								
1	Definition and Classification of Composite Materials: Dispersion/Particle/Fiber Reinforced Composites.								
2	Fibers Reinforced Plastics: Manufacturing of Fibers.								
3	Polymeric Materials: Production Methods, Mechanical Behaviour and Properties.								
4	Production of Composite Materials.								
5	Physical-Chemical Characteristics of Fiber/Matrix Interfaces.								
6	Mechanical Properties of Composites.								
7	First Midterm.								
8	Lamination Theory: Anisotropic and Orthotropic Materials.								
9	Stress – Strain Behaviour of Anisotropic and Orthotropic Materials.								
10	Lamina Analysis (Plane stress analysis), Laminate Analysis.								
11	Thermal and Hygral Behaviour of Lamina.								
12	Mechanical Test Methods for Lamina								
13	Metal Matrix Composites: Production, Properties and Test Methods.								
14	Second Midterm.								