

MM 517 Mechanics of Composite Materials				MECHANICAL ENGINEERING DEPARTMENT					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project/Field Study	Homework	Other	Total	Credit	ECTS credit
1,2	12	30				146	188	3	7.5
Language	Turkish								
Compulsory / Elective	Optional								
Prerequisites	-								
Course Contents	Fundamentals of linear anisotropic elasticity. Constitutive equations for the macroscopic behavior of laminated composites. Continuum theory of fiber-reinforced composites. Analysis of internal fields in heterogeneous medium. Wave propagation and dynamic effects in composites. Effective-stiffness theory considerations. Introduction to the theory plastic and viscoelastic composites.								
Course Objectives									
Learning Outcomes and Competences									
Textbook and /or Reference	1. Daniel M. Isaac, Ishai Ori, (1994), Engineering Mechanics of Composite Materials, New York, Oxford University Press. 2. Jones M. Robert, (1975), Mechanics of Composite Materials, USA, Taylor and Francis Books. 3. Hyer M.W., (1998), Stress Analysis of Fiber- Reinforced Composite Materials, Singapore, McGraw-Hill.								
Assessment Criteria					If any, mark as (X)		Percentage (%)		
	Midterm Exams				X		20		
	Quizzes								
	Homeworks								
	Projects								
	Term Paper				X		10		
	Laboratory Work								
	Other								
	Final Exam				X		70		
Instructors	Prof. Mahmut OZBAY								
Week	Subject								
1	Fibers and Matrices								
2	Fundamentals of Linear Anisotropic Elasticity								
3	Stress-Strain Relations for Orthotropic Materials								
4	Constitutive Equations for The Macroscopic Behaviour of laminated composites								
5	Stress-Strain Relations for Plane Stress								
6	Plane-Stress Stress-Strain Relations in a Global Coordinate Systems								
7	Continuum Theory of Fiber-Reinforced Composites								
8	Analysis of Internal Fields in Heterogeneous Medium								
9	Analysis of Internal Fields in Heterogeneous Medium								
10	Wave Propagation and Dynamic Effects in Composites								
11	Wave Propagation and Dynamic Effects in Composites								
12	Effective-Stiffness Theory of Viscoelastic Composites								
13	Introduction to Theory of Viscoelastic Composites								
14	Introduction to Theory of Plastic Composites								