

MM 528 Continuum Mechanics II				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	Constitutive Equations. Axioms of constitutive theory. Thermo-mechanical materials. Elastic materials. Isotropic elastic materials. Stokesian fluids. Thermo-viscose fluids. Isotropic thermo-elastic materials. Elasticity theory. Linear constitutive equations. Constraints on elastic moduli. Elastic waves in isotropic solids. Fluid mechanics. Linear constitutive equations. Particular classes of motions. Compressible ideal fluids and acoustics. Thermo-elasticity. Isotropic solids. Heat conduction in solids. Thermo-elastic waves. Visco-elasticity. Nonlinear and linear Kelvin-Voigt materials. Maxwell materials. General viscoelastic materials. Functional constitutive equations. Wave propagation. Thermo-viscoelastic fluids.								
Course Objectives	Mechanics of deformable bodies involves the study of stress, strain, and temperature distribution in a solid or fluent body subjected to mechanical and thermal loading.								
Learning Outcomes and Competences	Students are provided by the knowledge of formulation and analysis of the basic boundary/initial-value problems at the proper level of mathematical methods that enable them to understand the general underlying principles.								
Textbook and /or Reference	1. Eringen, A.C., (1980). Mechanic of Continua. Krieger. 2. Eringen, A.C., (1962). Nonlinear Theory of Continuous Media. McGraw-Hill. 3. Eringen, A.C., (1972). Continuum Physics, Vol.2. Acad Press.								
Assessment Criteria					If any, mark as (X)		Percentage (%)		
	Midterm Exams				X		30		
	Quizzes								
	Homeworks								
	Projects								
	Term Paper								
	Laboratory Work								
	Other								
	Final Exam				X		70		
Instructors									
Week	Subject								
1	Axioms of Constitutive Theory. Thermo – Mechanical Materials.								
2	Elastic Materials. Isotropic Elastic Materials.								
3	Stokesian Fluids. Thermo – Viscose Fluids.								
4	Elasticity Theory. Linear Constitutive Equations.								
5	Constraints on Elastic Modul. Elastic Waves in Isotropic Solids.								
6	Fluids Mechanics. Linear Constitutive Equations.								
7	Particular Classes of Motions. Compressible Ideal Fluids and Acoustics.								
8	Thermo – Elastic Waves. Visco – Elasticity.								
9	Nonlinear and Linear Kelvin – Voigt Materials.								
10	Maxwell Materials.								
11	General Viscoelastic Materials.								
12	Functional Constitutive Equations.								
13	Wave Propagation.								
14	Thermo-Viscoelastic Fluids.								