OSTIM TECHNICAL UNIVERSITY
FACULTY OF ENGINEERING

COURSE SYLLABUS FORM
2021-2022

Instructors: Dr. Çağıl Merve Tanık, cagilmerve.tanik@ostimteknik.edu.tr
Assistance: Mehmet Can Türk mehmetcan.turk@ostimteknik.edu.tr

MEC 201 Statics

Course Name	Course Code	Period	Hours	Application	Laboratory	Credit	ECTS
STATICS	MEC 201	1	3	0	0	3	4

Language of Instruction	English
Course Status	Compulsory
Course Level	Bachelor
Learning and Teaching Techniques of the Course	Lecture, Discussion, Question Answer, Practice

Course Objective

The objective of this course in mechanics should be to develop in the engineering student the ability to analyze any problem in a simple and logical manner and to apply to its solution a few, well understood, basic principles.

Learning Outcomes

1. Calculating the moment of a force and couple vector in 3D-space using vector algebra.
2. Determining the resultants of force systems acting on rigid bodies.
3. Identifying the types of contact between rigid bodies and draw the free body diagrams for a rigid body or for a group of rigid bodies.
4. Establishing the equations of equilibrium for a rigid body or a group of rigid bodies.
5. Calculating the internal forces in engineering structures composed of simple trusses or beams.
6. Analyzing the static problems involving Coulomb friction, complex surface contact friction and belt friction
7. Determining the geometric properties of surfaces and volumes.

Course Outline
Idealizations and principles of mechanics. Important vector quantities, classification and equivalence of force systems. State of equilibrium. Elements of structures; trusses, beams, cables and chains. Friction. Elements of static of fluids. Variational methods; principles of virtual work and minimum potential energy.

Weekly Topics and Releated Preparation Studies		
Weeks	**Topics**	**Preparation Studies**
1	Introduction	Chapter 1
2	Statics of Particles	Chapter 2
3	Rigid Bodies: Equivalent Systems of Forces, Quiz 1	Chapter 3
4	Rigid Bodies: Equivalent Systems of Forces	Chapter 3
5	Reduction to a Force and a Couple, Quiz 2	Chapter 3
6	Equilibrium of Rigid Bodies	Chapter 4
7	Equilibrium of Rigid Bodies	Chapter 4
8	Midterm exam	
9	Distributed Forces: Centroids and Centers of Gravity, Quiz 3	Chapter 5
10	Distributed Forces: Centroids and Centers of Gravity	Chapter 5
11	Analysis of Frames and Trusses, Quiz 4	Chapter 6
12	Analysis of Machines	Chapter 6
13	Forces in Beams	Chapter 7

14	Friction, Quiz 5	Chapter 8
15	Distributed Forces: Moments of Inertia	Chapter 9
16	**Final Exam**	

Textbook(s)/References/Materials:
F. P. Beer, E. R. Johnston Jr., E. R. Eisenberg, & G. H. Staab, Vector Mechanics for Engineers: Statics
R. C. Hibbeler, Engineering Mechanics: Statics

Assessment		
Studies	**Number**	**Contribution margin (%)**
Attendance	14	10
Lab		
Application		
Field Study		
Course-Specific Internship (if any)		
Quizzes / Studio / Critical	5	20
Homework		
Presentation		
Projects		
Report		
Seminar		
Midterm Exams / Midterm Jury	1	30
General Exam / Final Jury	1	40
	Total	**100**
Success Grade Contribution of Semester Studies		60
Success Grade Contribution of End of Term		40
	Total	**100**

Relationship Between Course Learning Outcomes and Program Competencies							
Nu	**Learning Outcomes**	**Contribution Level**				
		1	**2**	**3**	**4**	**5**
1	An ability to apply knowledge of science, mathematics, and engineering.					x
2	An ability to design static systems, components, or processes to meet industrial needs.					x
3	An ability to work with multi-disciplinary teams.					x
4	An ability to identify, formulate, and solve engineering problems.					x
5	Take responsibility to solve unpredictable and complex problems encountered in applications as an individual and as a member of a team			x		
6	Plan and manage activities in teamwork			x		

7	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.				x	
8	Can do research on interdisciplinary fields.			x		

ECTS / Workload Table			
Activities	**Number**	**Duration (Hours)**	**Total Workload**
Course hours (Including the exam week: 16 x total course hours)	16	3	48
Laboratory			
Application			
Course-Specific Internship			
Field Study			
Study Time Out of Class	14	2	28
Presentation / Seminar Preparation			
Projects			
Reports			
Homeworks			
Quizzes / Studio Review	5	2	10
Preparation Time for Midterm Exams / Midterm Jury	1	15	15
Preparation Period for the Final Exam / General Jury	1	15	15
Total Workload			**116**