OSTIM TECHNICAL UNIVERSITY
FACULTY OF ENGINEERING

COURSE SYLLABUS FORM
2020-2021

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

MEC 102 Introduction to Mechanical Engineering							
Course Name	**Course Code**	**Period**	**Hours**	**Application**	**Laboratory**	**Credit**	**ECTS**
Introduction to Mechanical Engineering	MEC 102	2	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 main objective of the course is to prepare the students to mechanical engineering profession at an early stage. The course aims to provide the students:

- A general understanding of major fields of mechanical engineering.
- An insight about systems approach.
- A preliminary step to engineering design in a team environment.
- Appreciation for engineering ethics through case studies.
- Awareness of social concerns in engineering practices.
- Skills for writing homework assignments and reports, and presentation of scientific results orally in an effective way.
- Basic principles of scientific computation and a basic understanding of engineering and other related software.
- Knowledge about professional engineering organizations.
- Information about academic search engines to reach engineering information.
- Basic skills for time management and project planning.

Learning Outcomes	
1	Ability to find and interpret information.
2	Ability to establish the relationship between mathematics, basic sciences and engineering sciences with engineering applications
3	Ability to follow the literature and technology related to his/her topic of interest.
4	Recognition of the need to keep oneself up to date in his/her profession.
5	Possession of written and oral communication skills.
6	Ability to conduct team work (within the discipline, inter-disciplinary, multi-disciplinary).
7	Ability to produce original solutions.
8	Use of scientific methodology in approaching and producing solutions to engineering problems and needs.
9	Openness to all that is new.
10	Ability to conduct experiments.
11	Ability to do engineering design.
12	Awareness of engineering ethics, knowledge and adoption of its fundamental elements.
13	Ability to take societal, environmental and economical considerations into account in professional activities.
14	Possession of pioneering and leadership characteristics in areas related to the profession.

Course Outline
Overview of the major fields of mechanical engineering: design, production, theory of machines, solid mechanics, fluid mechanics and thermal and energy systems. Systems approach, project planning, professional writing and engineering ethics. Written and oral communication in engineering.

Weekly Topics and Releated Preparation Studies		
Weeks	**Topics**	**Preparation Studies**
1	Introduction to Engineering and Mechanical Engineering	Chapter 1
2	Engineering Design	Chapter 2
3	Manufacturing	Chapter 2
4	Project Planning, Teamwork and Time Management	

5	Mechanics	Chapter 4
6	Effective Writing and Presentation Skills	Chapter 3
7	Strength, Stress, and Materials	Chapter 5
8	**Midterm exam**	
9	Ethics	Chapter 3
10	Dynamics, Theory of Machines, and Control	Chapter 8
11	Problem Solving Methods and Engineering Software	
12	Thermofluids and Energy Part 1	Chapter 7
13	Thermofluids and Energy Part 2	Chapter 7
14	Professional Organizations (ASME/MMO), Technical Publications, Standarts	
15	Seminer	
16	**Final Exam**	

Textbook(s)/References/Materials:
An Introduction to Mechanical Engineering, Jonathan Wickert and Kemper Lewis, 2013. ISBN: 978-1-111-57680-6 (Print) Thinking like an Engineer: An Active Learning Approach, Elizabeth A. Stephan, David R. Bowman, William J. Park, Benjamin L. Sill and Matthew W. Ohland, 2015. ISBN: 978-0-1335-9321-1 (Print) Introduction to engineering: modeling and problem solving, Brockman, Jay B., Thomas Fuja, and Stephen Batill, 2009. ISBN: 978-0-4714-3160-2 (Print)

Assessment		
Studies	**Number**	**Contribution margin (%)**
Attendance	14	10
Lab		
Application		
Field Study		
Course-Specific Internship (if any)		
Quizzes / Studio / Critical	5	30
Homework		
Presentation		
Projects	2	20
Report		
Seminar		
Midterm Exams / Midterm Jury		
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	2	5	10
Reports			
Homeworks			
Quizzes / Studio Review	5	2	10
Preparation Time for Midterm Exams / Midterm Jury			15
Preparation Period for the Final Exam / General Jury	1	15	15
Total Workload			**111**