OSTIM TECHNICAL UNIVERSITY
FACULTY OF ENGINEERING

COURSE SYLLABUS FORM
2021-2022

Instructor: Dr. Hikmet BAL, hikmet.bal@ostimteknik.edu.tr

MEC 308 Machine Design 2							
Course Name	**Course Code**	**Period**	**Hours**	**Application**	**Laboratory**	**Credit**	**ECTS**
Machine Design 2	MEC 308	1	3	1	0	4	5

Precondition	MEC 307
Language of Instruction	English
Course Status	Compulsory
Course Level	Bachelor
Learning and Teaching Techniques of the Course	Lecture, Discussion, Question Answer, Practice

Course Objective

To give the students confidence in analyzing and designing of sliding and rolling bearings, spur, helical and bevel gears, spiral and worm gear mechanizms, belt drives and chain mechanisms..

Learning Outcomes

A successful student of this course,

1) Apply calculation methods of bearings, gears, couplings, clutches, friction drives.
2) Use standards tables and select proper machine elements accordingly
3) Design simple machines and mechanisms considering the strength issues.

Course Outline

The course covers the following topics; lubricants and lubrication theory, sliding and rolling bearings, design of gear drives, spur, helical and bevel gears, spiral and worm gear mechanisms, design of couplings, clutches and brakes, design of belt-pulley mechanisms, design of chain gear mechanisms, friction drives.

Weekly Topics and Related Preparation Studies		
Weeks	Topics	Preparation Studies
1	Introduction, friction,lubricants and lubrication theory.	
2	Lubrication theory and sliding bearings	
3	Sliding bearings	
4	Rolling bearings	
5	Spur gears	
6	Spur gears	
7	Spur and helical gears	
8	Helical and bevel gears	
9	Spiral and worm gear mechanisms	
10	Couplings, clutches and brakes	
11	Couplings, clutches and brakes	
12	Belt-drive mechanisms	
13	Belt-drive mechanisms and chain drive mechanisms	
14	Chain drive mechanisms, friction drives	

Textbook(s)/References/Materials:
1. “Shigley’s Mechanical Engineering Design”, R. G. Budynas, J. K. Nisbett, 10th Edition in SI Units 2. “Design of Machine Elements”, V B Bhandari, McGraw Hill

Assessment		
Studies	**Number**	**Contribution margin (%)**
Attendance	14	5
Lab		
Application		
Field Study		
Course-Specific Internship (if any)		
Quizzes / Studio / Critical		
Homework	6	30

Presentation		
Projects	1	30
Report		
Seminar		
Midterm Exams / Midterm Jury		
General Exam / Final Jury	1	35
	Total	**100**
Success Grade Contribution of Semester Studies		65
Success Grade Contribution of End of Term		35
	Total	**100**

Relationship Between Course Learning Outcomes and Program Competencies							
#	**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 dynamic 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	1	15	15
Reports			
Homeworks	6	5	30
Quizzes / Studio Review			
Preparation Time for Semestr Project/ Project Jury	1	15	15
Preparation Period for the Final Exam / General Jury	1	15	15
Total Workload	(137/30=)		**4,57**