ESOGU CIVIL ENGINEERING DEPARTMENT

COURSE INFORMATION FORM

Course Name	Course Code
STATIC	151412210

Semester	Number of Course Hours per Week		ECTS
	Theory	Practice	
2	4	0	4

Course Category (Credit)				
Basic Sciences	Engineering Sciences	Design	General Education	Social
2	2			

Course Language	Course Level	Course Type
Turkish	Undergraduate	Compulsory

Prerequisite(s) if any	-
Objectives of the Course	1. Definition of force and moment vectors, including the necessary vector algebra. 2. Equilibrium of particles and rigid bodies (in plane and space). 3. Calculation of supports and support reactions. 4. Establishing the necessary foundation for the equilibrium of structural systems and internal forces (bars, trusses, frames, cables, machines).
Short Course Content	Principles of statics, force vector, equilibrium of particle, moment of a couple, equilibrium of rigid body, planar forces, center of gravity, Theorem of Pappus-Guldinus, distributed loads and hydrostatics forces, supports and support reactions, Gerber beams, frames, simple machines, trusses, cables, friction, virtual work

	Learning Outcomes of the Course	Contributed PO(s)	Teaching Methods *	Measuring Methods **
1	Acquires basic skills in vector algebra (scalar and vector multiplication, addition, and subtraction), and the definition of force and moment.	1, 2	1, 5, 10	A, K
2	Gains general knowledge and calculation skills in the equilibrium of particles and rigid bodies.	1, 2	1, 5, 10	A, K
3	Can calculate the center of gravity.	1, 2	1, 5, 10	A, K
4	Can calculate supports and support reactions.	1, 2	1, 5, 10	A, K
5	Acquires basic knowledge and calculation skills in the static equilibrium of statically determinate structures (bars, trusses, frames, cables).	1, 2	1, 5, 10	A, K
6	Can calculate distributed loads and their resultants.	1, 2	1, 5, 10	A, K
7	Develops engineering problem-solving skills, can create mathematical representations of real systems, and draw free body diagrams.	1, 2	1, 5, 10	A, K
8				

*Teaching Methods 1:Expression, 2:Discussion, 3:Experiment, 4:Simulation, 5:Question-Answer, 6:Tutorial, 7:Observation, 8:Case Study, 9:Technical Visit, 10:Trouble/Problem Solving, 11:Induvidual Work, 12:Team/Group Work, 13:Brain Storm, 14:Project Design / Management, 15:Report Preparation and/or Presentation

**Measuring Methods A:Exam, B:Quiz, C:Oral Exam, D:Homework, E:Report, F:Article Examination, G:Presentation, I:Experimental Skill, J:Project Observation, K:Class Attendance; L:Jury Exam

Main Textbook	M.H. Omurtag, Statik, Birsen Yayınevi Hibbeler, Statics, Prentice Hall
Supporting References	M.H. Omurtag, Statik Çözümlü Problemler, Birsen Yayınevi F.P. Beer, E.R. Johnston, D.F. Mazurek, P.J. Cornwell, Vector Mechanics for Engineers: Statics and Dynamics. McGraw-Hill Higher Education. J.L. Meriam, L.G. Kraige, J.N. Bolton, Engineering Mechanics: Statics, Hoboken, NJ: Wiley
Necessary Course Material	Calculator, Ruler, Set Square, Pencil, Eraser

Course Schedule	
1	Principles of statics and vectors
2	Forces and Equilibrium
3	Free body diagram, Moment and Couple, Varignon's theorem
4	Plane forces, resultant of force systems, equilibrium equations
5	Three-dimensional force systems, resultant of force systems, equilibrium equations
6	Structural Systems, Loads, Supports, and support reactions, statically determinate systems
7	Plane trusses and solution methods
8	Mid-Term Exam
9	Space truss systems and solution methods
10	Beams and frames
11	Bending Moment, Shear Force, and Axial Force Diagrams
12	Bending Moment, Shear Force, and Axial Force Diagrams
13	Center of Gravity and Centroid, Pappus-Guldinus theorems
14	Moments of Inertia
15	Cables
16,17	Final Exam

Calculation of Course Workload			
Activities	**Number**	**Time (Hour)**	**Total Workload (Hour)**
Course Time (number of course hours per week)	14	4	56
Classroom Studying Time (review, reinforcing, prestudy,….)	14	3	42
Homework			
Quiz Exam			
Studying for Quiz Exam			
Oral exam			
Studying for Oral Exam			
Report (Preparation and presentation time included)			
Project (Preparation and presentation time included)			
Presentation (Preparation time included)			
Mid-Term Exam	1	1.5	1.5
Studying for Mid-Term Exam	1	10	10
Final Exam	1	1.5	1.5
Studying for Final Exam	1	10	10
		Total workload	121
		Total workload / 30	4.03
		Course ECTS Credit	4

Evaluation	
Activity Type	**%**
Mid-term	40
Quiz	
Homework	
Bir öğe seçin.	
Bir öğe seçin.	
Final Exam	60
Total	100

RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO) (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low)		
NO	**PROGRAM OUTCOME**	**Contribution**
1	Strong background in mathematics, science, and fundamental engineering principles; ability to apply theoretical and practical knowledge from these fields to model and solve engineering problems	4
2	Expertise in identifying, defining, and formulating complex engineering problems in civil engineering and related fields. Ability to select and apply appropriate analysis and modeling methods to solve these problems	4
3	Ability to design complex systems, devices, or products under realistic constraints and conditions. Proficiency in using modern design methods to meet specific objectives	
4	Competence in developing, selecting, and using modern techniques and tools for civil engineering applications. Effective utilization of information technologies to support engineering tasks	
5	Expertise in designing experiments, conducting tests, collecting data, analyzing results, and interpreting findings for civil engineering problem investigations	
6	Ability to work effectively in both intradisciplinary and interdisciplinary teams	
7	Effective Turkish oral and written communication skills and proficiency in using and developing foreign language skills	
8	Commitment to lifelong learning. Ability to access information, stay up-to-date with advances in science and technology, and continuously self-improve	
9	Strong sense of professional and ethical responsibility	
10	Knowledge of project management, risk management, and change management practices; awareness of entrepreneurship, innovation, and sustainable development principles	
11	Understanding of the global and societal impacts of engineering applications on health, the environment, and safety; awareness of national and international legal regulations, standards, and the legal implications of engineering solutions	
12		

LECTURER(S)				
Prepared by	Assis. Prof. Dr. Hasan Selim ŞENGEL			
Signature(s)				

Date: 06.06.2024