COURSE CATALOG

Course Code: CE 102				**Course Name**: Statics			
Semester	**T + P + L**	**Credits**	**ECTS**	**Language**	**Course Type**	**Instruction Methods**	**Prequisite(s)**
2	3 + 1 + 0	3	6	English	Required (D1)	Lecture	-

Course Objectives	General principles. Force vectors. Equilibrium of a particle. Force system resultants. Equilibrium of a rigid body. Structural analysis. Internal forces. Friction. Center of gravity and centriod. Moments of inertia. Virtual work.
Topics Covered	Basic Concepts, scalars, vectors, Newton's Law, units, gravitation, accuracy. Force Systems: Force, rectangular components. Moment and couples, resultants. Three-dimensional force systems, equilibrium. Structures: Plane trusses, Method of joints, examples. Method of sections. Space trusses. Distributed forces: Center of mass, centroids of lines, areas and volumes. Composite bodies, Theorems of Pappus. Beams: External effects. Internal effects . Flexible cables. Fluid statics. Frictional phenomena: Type of frictions, dry friction, wedges screws, flexible belts, rolling resistance. Virtual Work. work, equilibrium. Potential energy and stability.
Learning Outcomes of the Course	After the completion of this course, students should be able to: 1- to show the basic principles of equilibrium. [1,2,15] 2- to introduce freshman students to modelling techniques commonly used in engineering problems; [1,2] 3- to teach them how to turn real-life engineering systems into analytical models. [2,3,6] 4- to provide students the ability for solving problems in a systematic manner by means of sketching the freebody diagrams for structures and components, and by applying the static equations of equilibrium in order to solve such engineering systems. [2] 5- to teach students how structures support loads, and how to analyze cables and frames. [2,6,15] *[Note that the numbers in between the brackets address the bullet numbers in the program outcomes list.]*
ISCED Category of the Course	52 Engineering
Textbook	J.L. Meriam and L.G. Kraige: Engineering Mechanics- Statics, 2008, Wiley.
Recommended Sources	1- R. C. Hibbeler, Engineering Mechanics- Statics, (2010), Pearson. F. P. Beer, E. R. Johnston, Statics, McGraw-Hill Book Comp., 2000 . 2- F. P. Beer, E. R. Johnston, Statics, McGraw-Hill Book Comp., 2000

WEEKLY SCHEDULE

Week	**Theoretical Topic**	**Applied / Laboratory Topics**
1	Basic Concepts, scalars, vectors, Newton's Law, units, gravitation, accuracy.	
2	Force Systems: Force, rectangular components.	
3	Moment and couples, resultants	
4	Three-dimensional force systems, equilibrium.	
5	Structures: Plane trusses, Method of joints, examples.	
6	Method of sections, examples.	
7	Space trusses.	
8	Distributed forces: Center of mass, centroids of lines, areas and volumes.	
9	Composite bodies, Theorems of Pappus.	
10	Beams: External effects. Internal effects	
11	Flexible cables.	
12	Fluid statics .Frictional phenomena: Type of frictions: Dry friction.	
13	Frictional phenomena: wedges screws, Wedges, flexible belts, rolling resistance.	
14	Virtual Work. Work, equilibrium. Potential energy and stability.	

COURSE ASSESSMENT POLICY

	Activities	**Number**	**Contribution (%)**
Studies throughout the	**Quizes**	3	05
	Term Homework/ Project		

term	**Reports**	-	-
	Graduation Thesis/ Project	-	-
	Seminar	-	-
	Homeworks	5	10
	Presentations	-	-
	Midterm Exams	2	40
	Project		
	Laboratory	-	-
	Other (attendence)	14	05
FINAL EXAM		1	40
Total			100

CONTRIBUTION OF THE COURSE TO CIVIL ENGINEERING PROGRAM OUTCOMES

	Program Outcomes	**1**	**2**	**3**
1	The ability to apply knowledge of mathematics, science, and engineering			X
2	The ability to identify, formulate, and solve engineering problems			X
3	The ability to design a system or component to meet desired needs with realistic constraints such as economic, environmental, social, ethical, health and safety, manufacturability and sustainability			X
4	The ability to analyze and interpret data			X
5	The ability to design and conduct experiments and apply experimental results to improve processes			X
6	The ability to convey technical material through oral presentations and written papers/reports		X	
7	The ability to function within multidisciplinary teams		X	
8	The understanding of professional and ethical responsibilities			X
9	The understanding of the impact of engineering on society	X		
10	The understanding of the necessity to engage in life-long learning	X		
11	The understanding of management and leadership principles and techniques		X	
12	The appreciation of the role of research in civil engineering problems		X	
13	A knowledge of contemporary issues in civil engineering		X	
14	The ability to use modern engineering techniques, skills, and tools		X	
15	The ability to understand and explain basic concepts in management, business, and leadership			x
16	A commitment to quality, punctuality and continuous improvement			X

Contribution Level: 1 low, 2 medium, 3 high

ECTS-WORKLOAD TABLE

ACTIVITIES	**Number**	**Duration (Hour)**	**Workload(Hour)**
Lecture Time	14	3	42
Final Exam (Including Preparation Time)	1	8	18
Quiz			
Term Homework / Project	-	-	-
Reports			
Graduation Thesis/Project	-	-	-
Seminar			
Study Time Outside the Class	14	2	28
Homework	5	6	30
Presentations	-	-	-
Midterm Exams (Including Preparation Time)	2	11	22
Project	-	-	-
Laboratory	-	-	-
Total Workload			140
ECTS Credits of the Course (Total Workload / 25)			6

Last update on **19.12.2013**	**Coordinator / PREPARED BY** **Esin İnan**	**APPROVED BY** **Esin İnan**