

## COURSE DESCRIPTION FORM

<b>Course Code and Title</b>	CE483 STEEL STRUCTURES
<b>Semester</b>	7
<b>Catalog description</b>	Development of steel. Steel as a building material. Mechanical properties of steel. Lattice steel structure elements and element's behavior (single-piece drawstrings and pressure rods, bending elements. Steel element connections connection and connection elements (under axial loads; Under rivet, bolt, weld, axial load and moment; Rivet, bolt, welding) Multi-piece pressure rods. Truss system design materials
<b>Required reading</b>	Deren, H., "Çelik Yapılar", İ.T.Ü İnşaat Müh. Böl., 1995, 401 sayfa
<b>Recommended reading</b>	1. Odabaşı, Y. "Ahşap ve Çelik Yapılar", Beta Basım Yayım Dağıtım A. Ş., Cağaloğlu, İstanbul, 1997, 479 sayfa 2. Akkaş, N. and Yılmaz, Ç., "Steel Structures", classnotes, 1974, 52 p. 3. B. Bresler, T.Y. Lin "Design of Steel Structures", John Wiley&Sons.Inc. 4. TSE 648 (2016) 5. TS EN 1991-1-1,2,3 ve 4
<b>ECTS</b>	4
<b>Prerequisites and co-requisites</b>	Prerequisite course: <b>CE226 STRENGTH OF MATERIALS I</b> Required attendance to lectures is at least 70%
<b>Compulsory/Elective</b>	Compulsory
<b>Language of instruction</b>	English
<b>Aim of course</b>	To teach the principles of student steel structures
<b>Learning outcomes of the course unit</b>	1- Dimensioning and analysis of steel industry structures 2- Design and dimension plane steel system components and their connections.
<b>Mode of delivery</b>	The mode of delivery of this course is face to face.
<b>Course content</b>	<ol style="list-style-type: none"> <li>1. Introduction, material properties, mechanical properties of structure steel and stress unit deformation relation</li> <li>2. Structural steel safety stresses and loading conditions, properties of profiles and plates</li> <li>3. Determination of industrial building elements and influential loads.</li> <li>4. Sample solutions for one-piece draw bars and pressure bars.</li> <li>5. Sample solutions of rivet and bolt joints under axial load.</li> <li>6. Examples of welded joints under axial load,</li> <li>7. Examples of welded joints under axial load and Midterm 1</li> <li>8. Multi-piece pressure rods(I-II-III grup),</li> <li>9. Behavior of steel elements under axial load and moment</li> </ol>

	10. Welded joints of steel elements under axial load and moment 11. Axial load and momentum of steel elements, bolted joints, 12. Full body beams: General information, profiled beams, 13. Welded and bolted connections of profile beams, 14. Midterms 2 15. Analysis and dimensioning of cage structure elements.							
<b>Planned learning activities and teaching methods</b>	3 lecture hours per week (3+0) Web search and library work Report preparation Midterm exam and required works Final exam and required works							
<b>Assessment methods and criteria</b>		Quantity	Percentage (%)					
	Mid-terms	2	60					
	Assignment	-	-					
	Exercises	-	-					
	Projects	-	-					
	Practice	-	-					
	Quiz	-	-					
	Contribution of In-term Studies to Overall Grade %		60					
	Contribution of Final Examination to Overall Grade (%)		40					
	Attendance							
<b>Workload</b>	<b>Efficiency</b>	<b>Total Week Count</b>	<b>Weekly Duration (in hour)</b>	<b>Total Workload in Semester</b>				
	Theoretical Study Hours of Course Per Week	14	3	42				
	Practicing Hours of Course Per Week	14	0	0				
	Reading	14	0	0				
	Searching in Internet and Library	14	1	14				
	Designing and Applying Materials	14	0	0				
	Preparing Reports	14	1	0				
	Preparing Presentation	14	0	0				
	Presentation	14	0	0				
	Mid-Term and Studying for Mid-Term	2	10	20				
	Final and Studying for Final	1	15	15				
	Other	0	0	0				
	Total Workload:			105				
	Total Workload / 25:			4,2				
	ECTS:			4				
<b>Course's contribution to program</b>	No	Program Learning Outcomes		1	2	3	4	5
	1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these					X	

		areas in complex engineering problems.						
	2	Ability to identify, formulate, and solve complex civil engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.					X	
	3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.					X	
	4	Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in civil engineering practice; ability to employ information technologies and to use at least one computer programming language effectively.	X					
	5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex civil engineering problems or discipline specific research questions.		X				
	6	Ability to work efficiently in intra-disciplinary and multi-disciplinary teams.			X			
	7	Ability to work individually.			X			
	8	Ability to communicate effectively in Turkish, both orally and in writing; ability to write effective reports and comprehend written reports.		X				
	9	Knowledge of English of B1 level according to <u>Common European Framework of Reference</u> .					X	
	10	Prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.					X	
	11	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.			X			
	12	Consciousness to behave according to ethical principles and professional and ethical responsibility.			X			
	13	Knowledge on standards used in civil engineering practice.			X			
	14	Knowledge about business life practices such as project management, risk management, and change management.			X			
	15	Awareness in entrepreneurship, innovation; knowledge about sustainable development.			X			
	16	Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering.		X				
	17	Awareness of the legal consequences of engineering solutions.			X			
<b>Name of lecturer(s) and contact information</b>		Yrd. Doç. Dr. Meral Begimgil, begimgil@gazi.edu.tr Yrd. Doç. Dr. Yusuf Demirel, ydemirel@gazi.edu.tr						