AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Advanced Design of Steel Structures								
Course Code	MCE511		Couse Level		Second Cycle (Master's Degree)				
ECTS Credit	8	Workload	202 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The general objective of this course is to present the advanced topics in structural steel design in detail. These topics include behavior of built-up compression members, analysis and design of composite flexural members, and behavior of various seismic force resisting systems used in structural steel buildings. The students will also be introduced to the Load and Resistance Factor Design (LRFD) methodology through the use of North American design specifications, as well as the Turkish structural steel design standards. Emphasis will be given to the conceptual differences between the Load and Resistance Factor Design and the Allowable Stress Design methodologies As a part of this course, the students will also be asked to do some computer programming for the solution of homework assignments. The students will also be asked to perform a literature survey on each topic that will be covered in this course, the results of which will be presented to the class in the form of a written report and an oral presentation.								
Course Content	LRFD Design of Structural Steel Members, Built-Up Compression Members, Composite Flexural Members, Seismic Design								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Case Study, Project Based Study, Individual Study, Problem Solving								
Name of Lecturer(s)	Assoc. Prof. Mehmet Eren UZ								

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	2	40
Final Examination	1	40
Assignment	1	20

Recommended or Required Reading	
1	Kulak G. (2002) Limit States Design In Structural Steel. Canadian Institute of Steel Construction; Seventh Edition edition
2	Jack C. McCormac, Stephen F. Csernak, 2012. Structural Steel Design: International Edition, 5/E, Pearson, Prentice Hall

Week	Weekly Detailed Course Contents	
1	Theoretical	LRFD Design of Structural Steel Members
2	Theoretical	LRFD Design of Structural Steel Members
3	Theoretical	LRFD Design of Structural Steel Members
4	Theoretical	Built-Up Compression Members
5	Theoretical	Built-Up Compression Members
6	Theoretical	Built-Up Compression Members
7	Intermediate Exam	Mid Term Exam
8	Theoretical	Composite Flexural Members
9	Theoretical	Composite Flexural Members
10	Theoretical	Seismic Design Concepts
11	Theoretical	Seismic Design Concepts /Seismic Specifications
12	Theoretical	Seismic Specifications
13	Theoretical	Seismic Behavior of Moment-Resisting Frames
14	Theoretical	Seismic Behavior of Steel Plate Shear Wall Systems
15	Final Exam	Final

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	4	3	98
Individual Work	14	6	1	98
Midterm Examination	1	1	2	3

Final Examination	1	1	2	3
			Total Workload (Hours)	202
			[Total Workload (Hours) / 25*] = **ECTS**	8
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes	
1	Perform the design of steel tension, compression,and flexural members following the Load andResistance Factor Design (LRFD) philosophy
2	Understand the behavior of steel built-upmembers under concentrically applied axial loadsand come up with the most efficient member sizesto resist a given axial load.
3	Understand the mechanics through which acomposite flexural member resists the appliedloading, and be able to determine the requiredstrength at different components in a flexuralcomposite member (i.e., steel beam, concrete slab,and shear connectors) to resist a given loading
4	Determine the dimensions of typicalbolted/welded connections between steelstructural elements required to resist given loads
5	Make recommendations regarding the type oflateral load resisting system to use in a givenstructure to resist seismic effects

Programme Outcomes *(Civil Engineering (English) Master)*	
1	To be able to develop expertise knowledge in a civil engineering area founded on their graduate competence.
2	To be able to use the theoretical and practical expertise knowledge gained in their specialty area.
3	To be able to use the information, problem solving and / or practical skills from the field, in interdisciplinary studies.
4	To be able to create new knowledge by integrating their knowledge area with the knowledge coming from different disciplines; and solve problems that need expertise by using scientific research methods
5	To be able to solve the problems related to his/her area by using appropriate research methods
6	To be able to devise a problem in their specialty area, develop a solution methodology, solve the problem, and interpret the results and take action if necessary
7	To be able to criticize the knowledge in their specialty area, guide the learning process, and independently direct high level studies
8	To be able to systematically communicate the recent developments in their specialty area and their own studies to groups both inside and outside their specialty area, orally, in writing and visually
9	To be able to use computer software at a level required by their specialty area with drawing upon information and communication technology at a high level
10	To be able to introduce scientific, technological, social and cultural advancements in the field of civil engineering and to contribute to the process of being an information of the society and to sustain it.
11	To be conscious of professional and ethical responsibility and contribute to the establishment of this consciousness.
12	To be able to protect social, scientific, and ethical values during collection, interpretation, and dissemination stages of the data associated with their specialty area; instruct and supervise these values
13	To be able to use at least one foreign language in a level to follow current developments related to the field.

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	5	5	4	5	4
P2	4	4	5	4	5
P3	5	5	4	5	4
P4	4	4	5	4	5
P5	5	5	4	5	4
P6	4	4	5	4	5
P7	5	5	4	5	4
P8	4	4	5	4	5
P9	5	5	4	5	4
P10	4	4	5	4	5
P11	5	5	4	5	4
P12	4	4	5	4	5
P13	5	5	4	5	4