

<b>TISHK INTERNATIONAL UNIVERSITY</b> <b>FACULTY OF ENGINEERING</b> <b>Department of CIVIL ENGINEERING,</b> <b>2020-2021 Spring</b> <b>Course Information for CE 420 STRUCTURAL STEEL DESIGN</b>					
<b>Course Name:</b>	STRUCTURAL STEEL DESIGN				
<b>Code</b>	<b>Regular Semester</b>	<b>Theoretical</b>	<b>Practical</b>	<b>Credits</b>	<b>ECTS</b>
CE 420	8	4	-	4	
<b>Name of Lecturer(s)- Academic Title:</b>	Dilshad Jaf -				
<b>Teaching Assistant:</b>	NA				
<b>Course Language:</b>	English				
<b>Course Type:</b>	Main				
<b>Office Hours</b>	09:00 am - 12:00 pm				
<b>Contact Email:</b>	dilshad.jaf@tiu.edu.iq Tel:07504451870				
<b>Teacher's academic profile:</b>	Assistant Prof. BSc Civil Engineering 1982 MSc Structural Engineering 1986 PhD Structural Engineering 2000				
<b>Course Objectives:</b>	To acquaint the student with the theory of steel design of buildings using the Load Resistance and Factor Design ( LRFD )method . Upon completion of the course, the student should be able to: 1. Design steel tension members, columns, beams, beam-columns and welded and bolted connections using the AISC specifications. 2. Answer structural steel design problems in the exams; and 3. Prepare students for lifetime learning as structural steel design evolves, and to form a foundation for possible post graduate studies in the subject.				
<b>Course Description (Course overview):</b>	Bending and axial stress (beam column), Plate Girder, Fasteners and connections, Welded connections, Truss connections, Ram structure software Applications				
<b>COURSE CONTENT</b>					
<b>Week</b>	<b>Hour</b>	<b>Date</b>	<b>Topic</b>		
1	4	31/1-4/2/2021	Introduction , Steel properties, Types of structures, advantages and disadvantage of steel as a structural material, steel materials properties.		
2	4	7-11/2/2021	Types and shapes of structural steel members		
3	4	14-18/2/2021	Typical tension members , Net and gross areas , Effective area , Staggered bolted connections		
4	4	21-25/2/2021	Slenderness requirements , examples		
5	4	28/2-4/3/2021	Design of Cables and Threaded rods		
6	4	7-11/3/2021	Design of Eye bars and Pin-connected members		
7	4	28/3-1/4/2021	Design of compression members/1		
8	4	4-8/4/2021	Design of compression members/2		
9	4	11-15/4/2021	Midterm Exam		
10	4	18-22/4/2021	Midterm Exam		
11	4	25-29/4/2021	Design of beams/1		
12	4	2-6/5/2021	Design of beams/2		
13	4	9-13/5/2021	Design of beam- columns		
14	4	16-20/5/2021	connections		
15	4	23-27/5/2021	connections		

16	4	30/5-3/6/2021	Course Review
17	4	6-10/6/2021	Final Exam
18	4	13-17/6/2021	Final Exam
<b>COURSE/STUDENT LEARNING OUTCOMES</b>			
1	Analyze and design tension members.		
2	Analyze and design concentrically and eccentrically loaded columns..		
3	Design both laterally braced and unbraced beams		
4	Design and analysis of Connections		
5	Learn the art of detailing.		
<b>COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES</b> (Blank : no contribution, I: Introduction, P: Proficient, A: Advanced )			
<b>Program Learning Outcomes</b>			<b>Cont.</b>
1	Apply principles of mathematics, science, and engineering		A
2	Design and conduct experiments, as well as analyze and interpret data accurately.		A
3	Design an engineering system, component, or process to meet desired industrial needs.		A
4	Identify, formulate and solve complex engineering problems		A
5	Apply, in design and construction, the most modern design codes, standards and specifications such as; AISC, ACI, ASCE 7, IBC, etc.		A
6	Use the techniques, skills, and modern engineering tools, such as surveying instruments, and designing software that are necessary for engineering practices.		A
7	Apply knowledge and skills in construction project management and recognition of international standards and methodologies		A
8	Manage to work with multi-disciplinary teams and communicate effectively.		A
9	Identify the moral values that ought to guide the Civil Engineering profession and resolve the moral issues in the profession.		A
10	Apply the principles of sustainable development in their professional duties which go in line with the paramount safety, health and welfare of the public.		A
11	Analyze the impact of engineering solutions in a global and social context		A
12	Identify the need and have the ability to engage in lifelong learning and knowledge of contemporary issues.		A
<b>Prerequisites (Course Reading List and References):</b>		*Key references: structural steel , AISC , LRFD *Useful references: STEEL DESIGN books *Magazines and review (internet): AISC web site	
<b>Student's obligation (Special Requirements):</b>		Students are expected to attend all lectures. Non-excused absence for few lectures may be dealt with in accordance with the attendance policy of the college and university policies. Each student should have a copy of AISC LRFD Manual ( Metric version of second edition) The topics in the course will be presented using the overhead projector and the traditional lecture format. Students are encouraged to attend lectures to ensure that they appreciate what material is considered to be most important. Notes will be written on the board especially design equations, head titles, definitions and summary of conclusions and any other illustration, there will be class room discussions and the lecture will give enough background to solve examples.	
<b>Course Book/Textbook:</b>		AISC Manual American Institute of Steel Construction. 1999. Manual of Steel Construction LRFD Volume I & II ( Metric conversion of the second edition ).	
<b>Other Course Materials/References:</b>		1. Joseph E. Bowels " Structural Steel Design " 2. William T. Segui "Steel Design " 5th ed. 3. Fanellu etal "steel Design for engineers and architects" 2nd ed.	
<b>Teaching Methods (Forms of Teaching):</b>		Lectures, Presentation, Seminar, Assignments	
<b>COURSE EVALUATION CRITERIA</b>			
<b>Method</b>		<b>Quantity</b>	<b>Percentage (%)</b>
Attendance		1	2
Quiz		4	4
Homework		3	4
Midterm Exam(s)		1	30

Final Exam	1	40
<b>Total</b>		<b>100</b>
<b>Examinations:</b> Essay Questions, True-False, Short Answers, Matching		
<b>Extra Notes:</b>		
<b>ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD</b>		
<b>Activities</b>	<b>Quantity</b>	<b>Workload Hours for 1 quantity*</b>
		<b>Total Workload</b>
Theoretical Hours	18	4
Practical Hours	18	0
Final Exam	1	2
Attendance	1	11
Quiz	4	3
Homework	3	7
Midterm Exam(s)	1	0
<b>Total Workload</b>		<b>118</b>
<b>ECTS Credit (Total workload/25)</b>		<b>4.72</b>

**Peer review**

Signature:

Name:

Lecturer

Signature:

Name:

Head of Department

Signature:

Name:

Dean