

**CE 463**  
**Steel Design**  
**Fall 2018**  
**Class Information**

Hours / Location: MWF 1:00 – 1:50, ESB-E G78A

Professors: Dr. Karl E. Barth

Office: ESB 617

Office Hours: By appointment or in general 2:00 – 2:50 MWF

Textbook: (1) Load and Resistance Factor Design: Manual of Steel Construction, Fifteenth Edition, AISC, 2017

Organization:

- 3 lectures per week
- homework as assigned
- 3 examinations (2 during regular semester and 1 during finals week)

Grade Weighting:

• Homework	=	25 %
• Exam I	=	25 %
• Exam II	=	25 %
• <u>Exam III (during finals)</u>	=	<u>25 %</u>
Total	=	100 %

Topics: See attached syllabus

Course Statement:

Presently, structural steel represents 50% of the construction market share. It is a primary material used by Civil Engineers in numerous low- and high-rise frames, bridge structures, pressure vessels, industrial facilities, offshore structures, etc. The objective of this course will be to introduce the student to steel design using the Load and Resistance Factor Design method. This is a probabilistically based procedure geared towards developing known and uniform levels of safety. We will focus on the AISC-LRFD building specifications as they relate to structural components and sub-assemblages. The student should become familiar with this document as well as gain an increased understanding of both structural analysis and structural mechanics as they pertain to the determination of forces in the members and sub-assemblies.

Homework Policy:

- **Your name, course number, problem number, and due date must appear on all homework**
- **Successive pages of multiple page sets must be initialed and should have the pagination (i.e., 1/3, 2/3, 3/3, etc.) in the upper right-hand corner of the page**
- **All assignments are to be done NEATLY using**
  - **Pencil**
  - **Engineering paper**
    - **each problem should be started on a new sheet of engineering paper**
    - **only one side of the paper is to be used (the lighter side)**
  - **Straight edges must be used for all figures**
- **Multiple-page sets are to be stapled together in the upper left hand corner**
- **Late homework will not be accepted**

Examination Policy:

- Exams will be focused on specific areas of material coverage rather than being comprehensive.
- Exams will be closed textbook and closed notes, however we will make use of appropriate sections of the AISC specifications.
- ***You are to work on one side of the paper only on your exam sheets.***
- In the event that you question the grading of an exam problem, you must write an “appeal” summarizing your concerns, staple this to your exam, and submit this to the instructor. Note that the appeal should be typewritten and must be filed no later than, but inclusive of, the second class period following the return of the exam.

Attendance Policy:

- You are expected to attend all classes.

ABET Program Outcomes

Course Outcome Description	ABET Program outcome *
(1) Understand Structural Engineering project development and current design code development philosophies	(c), (i)
(2) Understand structural components and the general limit states governing their behavior	(a), (c), (e), (j), (k)
(3) Understand the load path for live and dead loads through a conventional steel framed structure	(a), (c), (e), (j), (k)

\* ABET Program outcomes:

- (a) Apply knowledge of math, science, and engineering
- (c) Design Civil engineering projects and components of projects
- (e) Identify, formulate, and solve Civil Engineering problems
- (j) Knowledge of contemporary issues
- (k) Use techniques, skills, and modern engineering tools

**CE 463 – Steel Design (Fall 2018)**  
**Tentative Schedule**

<b><u>Week</u></b>	<b><u>Class Dates</u></b>	<b><u>Class Topics</u></b>
1	08/15, 08/17	Introduction
2	08/20, 08/22, 08/24	Design Process & Loads Tension Members
3	08/27, 08/29, 08/31	Tension Members
4	<b>09/03</b> , 09/05, 09/07	Bolted Connections (Bearing Type) <b>No Class 09/03 (Labor Day)</b>
5	09/10, 09/12, 09/14	Bolted Connections (Slip-Critical)
6	09/17, 09/19, 09/21	Welded Connections
7	09/24, 09/26, 09/28	Flexural Members <b>*Exam 1*</b>
8	10/01, 10/03, 10/05	Flexural Members
9	10/08, 10/10, <b>10/12</b>	Flexural Design <b>Fall Break</b>
10	10/15, 10/17, 10/19	Compression Members
11	10/22, 10/24, 10/26	Compression Members <b>Last Day to Drop Class 10/23</b>
12	10/29, 10/31, 11/02	Compression Members <b>*Exam 2*</b>
13	11/05, 11/07, 11/09	Composite Design
14	11/12, 11/14, 11/16	Beam Columns
	<b>11/19, 11/21, 11/23</b>	Beam Columns <b>No Classes (Thanksgiving Break: 11/17-11/25)</b>
15	11/26, 11/28, 11/30	Beam Columns
16	12/03, 12/05, <b>12/07</b>	Introduction to RAM Steel <b>No Class 12/07 (Prep Day for Finals)</b>

Final Exam Week: 12/10 – 12/14

**\*Exam 3\*** 11 a.m. – 1 p.m. (12/11)