

1. *Course number and name*
ENGR 426: Steel Structures

2. *Credits and contact hours*
3 credit hours; three 50-minute lecture sessions/week, or two 1-hr-15-minute lecture sessions/week, depending on semester

3. *Instructor's or course coordinator's name*
Instructor: Jenna Wong, Assistant Professor of Civil Engineering

Course coordinator: Wenshen Pong, Professor of Civil Engineering

4. *Text book, title, author, and year*
Segui, W.T. LRFD Steel Design. 5th Edition, Thomson 2012.
 - a. *other supplemental materials*
Steel Construction Manual, 14th edition, AISC

5. *Specific course information*
 - a. *brief description of the content of the course (catalog description)*
Design of steel structures, members, and connections. Effects of loads causing flexure, shear and axial force, and their combinations on design choices. Steels and sections used in structural design. Use of design specifications.

 - b. *prerequisites or co-requisites*
ENGR 323: Structural Analysis

 - c. *indicate whether a required, elective, or selected elective course in the program*
Elective for Civil Engineering

6. *Specific goals for the course*
 - a. *specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.*
 - The student will demonstrate a knowledge of structural stress-strain curves.
 - The student will demonstrate a knowledge of steel behavior when subjected to bending, axial load and torsion.
 - The student will demonstrate a knowledge of whether optimum design has been achieved.
 - The student will demonstrate a knowledge of steel structural design procedures.
 - The student will demonstrate a knowledge of the design method: Load & Resistant Factor Design.
 - The student will demonstrate knowledge of the design of columns.

- The student will demonstrate knowledge of the design of beams.
- The student will demonstrate knowledge of the design of connections.
- The student will demonstrate knowledge of the design of composite beams. The student will demonstrate skill in solving practical engineering problems through project assignments.
- The student will demonstrate an understanding of the design building codes and the background of codes.
- The student will demonstrate skill in applying codes and specifications to design steel structural members.

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.

Course addresses ABET Student Outcome(s): a, c, e, f, h, i, k

7. *Brief list of topics to be covered*

- Principles of structural design
- Steel and properties
- Tension members
- Compression members: Columns
- Structural fasteners
- Welding
- Beams
- Combined bending and axial load
- Connections
- Composite steel-concrete construction