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: Wenshen Pong, Professor of Civil Engineering  
   Course coordinator: Wenshen Pong, Professor of Civil Engineering

4. **Text book, title, author, and year**  
   ISBN: 0-13-600111-4

   a. **other supplemental materials**  
      *Steel Construction Manual, 13th edition, AISC*

5. **Specific course information**  
   a. **brief description of the content of the course (catalog description)**  
      The behaviors and properties of structural steels. Principles of steel structural design.  
      Design methods of steel structures emphasizing load and resistance factor design. Design  
      procedures and specifications of steel members subjected to tension, compression,  
      flexure and torsion. Composite steel-concrete design and construction. Design building  
      codes and seismic provisions of steel structures.

   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, i, h, 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