1. Course number and name
ENGR 427: Wood 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

a. other supplemental materials

5. Specific course information
a. brief description of the content of the course (catalog description)
Design procedures and specifications of wood members subjected to tension, compression, flexure and combined bending and axial forces. Design building codes and seismic provisions of wood 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 knowledge of wood structural design criteria. The student will demonstrate knowledge of wood structural behavior when wood is subjected to bending, axial load and torsion.
  • The student will demonstrate knowledge of whether optimum design has been achieved.
  • The student will demonstrate knowledge of wood structural design procedures.
  • The student will demonstrate knowledge of the Allowable Stress Design method.
• 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 shear walls.
• 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 wood 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, k.

7. **Brief list of topics to be covered**

• Principles of structural design
• Properties of wood and its use as engineering material
• Design loads
• Beam design
• Column design
• Wood connections
• Plywood panels
• Horizontal diaphragms
• Combined bending and axial load
• Shear walls
• Nailed and stapled connections.
• Seismic design provisions