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