

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*
Donald Breyer, K.J. Fridley, K.E. Cobeen and D.G. Pollock. *Design of Wood Structures- ASD/LRFD*. 7th ed. McGraw-Hill, 2014. ISBN-13: 978-0-07-174560-4.
 - a. *other supplemental materials*
The Allowable Stress Design Manual, 2015 Edition. National Design Specification for Wood Construction. <http://www.awc.org/codes-standards/publications/nds-2015>

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