COURSE OUTLINE
CONS 112 - WOOD STRUCTURES

Prepared By: Joseph Reilly

CANINIO SCHOOL OF ENGINEERING TECHNOLOGY
Spring 2015
CONS 112 - WOOD STRUCTURES

A. TITLE: Wood Structures

B. COURSE NUMBER: CONS 112
   SHORT TITLE:

C. CREDIT HOURS: 3

D. WRITING INTENSIVE COURSE: N/A.

E. COURSE LENGTH: 15 (including final examination)

F. SEMESTER(S) OFFERED: FALL

G. HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:
   2 - 50-minute lectures; 1 - 3-hour laboratory

H. CATALOGUE DESCRIPTION: The study of construction materials, practices, equipment and terminology used in buildings requiring wood framing. Lectures and laboratory periods develop theory and practice in layout and assembly of wood framing of floors, walls, roofs and trusses, and siding materials. Construction of a 2-stall garage and/or small storage shed will serve as an application of wood framing and exterior finish fundamentals. Students will perform an individual research project with a written report. One or more field trips will be arranged.

I. PRE-REQUISITES/CO-COURSES: None

J. GOALS (STUDENT LEARNING OUTCOMES):
   By the end of this course, the student will be able to

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<th>Course Objective</th>
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<tr>
<td>a. Demonstrate the development of an effective vocabulary of terms related to the trade.</td>
<td>3: Professional Competence</td>
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<td>b. Describe the production and important properties of lumber and wood products.</td>
<td>3: Professional Competence</td>
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<td>c. Describe the process and theory of residential framing and finish.</td>
<td>3: Professional Competence</td>
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<td>d. Recognize and discuss options available in insulation, siding and roofing.</td>
<td>3: Professional Competence</td>
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<td>e. Perform essential mathematical calculations associated with residential construction. Layout floor, wall, and roof plates in preparation for assembly.</td>
<td>3: Professional Competence</td>
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<td>f. Employ hammer, drill, saws, square, and tape effectively in building a small wood structure.</td>
<td>3: Professional Competence</td>
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<td>g. Acquire information on wood-framed light construction topics using the internet and well known industry journals and prepare well-written summaries from the acquired information.</td>
<td>1: Communication Skills 2: Critical Thinking Skills</td>
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K.  **TEXTS**:  CARPENTRY, 4th Ed.  Floyd Vogt, Delmar Publishing

L.  **REFERENCES**:  The Journal of Light Construction (JLC)  
    New York State Residential Building Code

M.  **EQUIPMENT**:  Tape Measure, Safety Glasses

N.  **GRADING METHOD**:  A - F

O.  **MEASUREMENT CRITERIA/METHODS**:  
    • Unit Tests and comprehensive final exam  
    • Class assignments  
    • Term project (written and oral)  
    • Lab Participation  
    • Field Trips

P.  **DETAILED TOPICAL OUTLINE**:  
    I.  Wood  
        1. Trees  
            a) Hardwood/Softwood  
            b) Growth  
        2. Lumber  
            a) Harvest to manufacture  
            b) Sizes  
            c) Classifications  
        3. Wood Products  
            a) Panel products  
            b) Engineered Lumber products  
            c) Pressure Treated lumber  
        4. Fasteners

    II. Light Frame Construction  
        1. History  
        2. Platform Frame v Balloon Frame  
        3. Foundations - Overview  
            a) Footing and wall  
            b) Drainage  
            c) Slab on grade  
        4. Building the Frame  
            a) The platform  
            b) The walls  
            c) The roof

    III. Exterior Finishes  
        1. Roofing  
        2. Windows  
        3. Doors  
        4. Siding
5. Painting
6. Finish Grading and Landscaping

IV. Interior Finish (as time allows)
1. Flooring
2. Wall Finish
3. Tile
4. Stairway Design and Finish
5. Kitchen Design
6. Bath and Utility Areas

Q. LABORATORY OUTLINE:
The lab is divided into two categories: training and practical work. Lab exercises vary each year depending on the projects that have been arranged for students to build. Typically, students construct several storage buildings which offer different siding and roofing finishes.

Training Labs
1. Introduction: Lab Safety & Unit Conversions
2. Equipment use - Build a Sawhorse
3. Stud wall layout instruction
4. Joist selection
5. Constructing a pattern rafter
6. Field Trips: Truss Manufacturer, Pressure treating facility, Lumber Mill

Typical Building Construction Projects include storage building, garage or home addition
1. platform
2. Layout wall plates, cut studs, build headers, assemble walls (2 weeks)
3. Erect walls, square/plumb structure
4. Cut rafters, assemble roof frame
5. Attach roof sheathing
6. Trim rafter tails, attach fascia, build fly rafters, place felt paper and drip edge
7. Shingle the roof
8. Vinyl siding