This course was offered on campus and recorded by NC State’s Engineering Online Program in the spring semester of 2009. These previously recorded lectures and course materials will be used this summer. All materials are available on the course webpage at the link below. Click on the appropriate item in the top horizontal menu bar: Syllabus, Videos, Assignments, etc.

http://engineeringonline.ncsu.edu/onlinecourses/coursehomepages/summer2010/CE528.htm

Instructor: J. M. Nau  
203B Mann Hall  
office phone: 515-7737  
email: nau@eos.ncsu.edu

Office Hours: Call or send email any time. Most students find email most convenient. In addition to weekdays, I generally monitor email at home in the evenings and on weekends. I will be out of town, and hence unavailable, on the following dates: May 27-June 1, June 10-13, June 18, and July 19-25.

Prerequisites: CE 325 Structural Analysis and a 2.5 undergraduate major gpa. These prerequisites will be strictly enforced. A first course in design such as CE 327 (reinforced concrete design) or CE 426 (structural steel design) is desirable.


References: International Building Code (IBC), 2006 edition, International Codes Council (ICC), Falls Church, VA, 2006. (Selected tables and figures from this building code appear in Appendix C of the textbook.)

Minimum Design Loads for Buildings and Other Structures, ASCE 7-05, American Society of Civil Engineers, New York, NY, 2005. (The required chapters from ASCE 7-05 are in the Course Materials folder accessible from the course homepage.)

Course Objectives:

The course covers the design of wood buildings, except for the foundations. The principles of member design also have application to other wood structures, such as concrete formwork and falsework. By the end of the course, the student will be able to:
1. Determine gravity and lateral design loads (from ASCE 7-05 and IBC 2006),
2. Design structural elements and subassemblies for vertical loads (tension members, compression members, and beams), and
3. Design structural elements and subassemblies for lateral forces (beam-columns, horizontal diaphragms, and shearwalls).

Course Outline:
The book selected for the course was written either as a text or as a reference for systematic self-study of the subject. The course will cover the first ten chapters of the text, which are organized as they are encountered in design practice. The design of connections is introduced by reviewing the content of chapters 11 through 14:

1. Wood Buildings and Design Criteria
2. Design Loads
3. Behavior of Structures under Loads
4. Properties of Wood and Lumber Grades
5. Structural Glued Laminated Timber
6. Beam Design
7. Axial Forces and Combined Bending and Axial Forces
8. Wood Structural Panels
9. Diaphragms
10. Shearwalls
11-14. Review of chapter content related to the design of connections

Grading:

Homework: 30% (10 assignments)
Tests: 2@15% (week of June 28 and the week of July 26)
Final Exam: 40% (August 10 or 11)

Grading Scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>A+</td>
<td>97-100</td>
<td>93-96.9</td>
</tr>
<tr>
<td>B+</td>
<td>87-89.9</td>
<td>83-86.9</td>
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<tr>
<td>C+</td>
<td>77-79.9</td>
<td>73-76.9</td>
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<tr>
<td>D+</td>
<td>67-69.9</td>
<td>63-66.9</td>
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<tr>
<td>F</td>
<td>&lt;60</td>
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</table>

Conduct of the Course:

Because all lectures and course materials are available from the first day of class, you may work at your own pace. It is important, however, to keep up. The following table contains a suggested schedule for the 10-week summer session. Generally, try to view at least three lectures and complete one homework assignment per week. Note that the tests and final exam can be scheduled with your proctor at a convenient time during the indicated time periods. **Test 1 must be taken during the week of June 28, and test 2 must be taken during the week of July 26. The 3-hour final exam must be taken on either Tuesday August 10 or Wednesday August 11.**
<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Lectures</th>
<th>Assignments</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>May 24-28</td>
<td>1-3</td>
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<tr>
<td>2</td>
<td>May 31-June 4</td>
<td>4-6</td>
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<td>3</td>
<td>June 7-11</td>
<td>7-9</td>
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<td>4</td>
<td>June 14-18</td>
<td>10-12</td>
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<td>5</td>
<td>June 21-25</td>
<td>13-15</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>June 28-July 2</td>
<td>16-18</td>
<td>6; take test 1 (Ch. 1-6, HW 1-5)</td>
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<tr>
<td>7</td>
<td>July 5-9</td>
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<td>Break/catch up week</td>
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<tr>
<td>8</td>
<td>July 12-16</td>
<td>19-21</td>
<td>7</td>
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<td>9</td>
<td>July 19-23</td>
<td>22-24</td>
<td>8</td>
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<tr>
<td>10</td>
<td>July 26-30</td>
<td>25-27</td>
<td>9; take test 2 (Ch. 7, 8; HW 6-9)</td>
</tr>
<tr>
<td>11</td>
<td>August 2-6</td>
<td></td>
<td>10</td>
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<tr>
<td>12</td>
<td>August 10 or 11</td>
<td></td>
<td>Take final exam</td>
</tr>
</tbody>
</table>

**Tests and Final Exam**

The two 75-minute tests and the 3-hour final exam must be proctored. Engineering Online students must submit the name of an individual to serve as a proctor to the EOL office within the first week of class. The Proctor Information Form must be completed and returned via fax to (919) 515-8415. Once the form has been received, you will be notified of the approval or disapproval status of the individual to serve as your proctor.

**Homework Policies:**

1. Each assignment must have a cover page with the following information: Course number and title, homework assignment number, and name. In addition, the NC State honor pledge must be signed:

   “I have neither given nor received unauthorized assistance on this assignment.”

2. Before 4:00 pm EDT each Friday, please scan and email your homework solutions to the NC State Engineering Online office using the email address Homework_EOL@ncsu.edu. Please make sure that your scans are legible when printed. You may also fax your homework to the EOL office. Their fax number is (919) 515-8415.
**Homework Standards:**

1. Use high quality paper, preferably scaled engineering paper. **Paper with ragged edges, i.e., torn from a notebook, will not be accepted.**

2. Provide a brief problem statement and appropriate sketches. Copying the entire problem statement from the text or assignment sheet is not required. **All sketches, free body diagrams, etc. must be drawn neatly and clearly using a straight edge.**

3. Show all work in a neat and orderly fashion. **All final and intermediate numerical results must be accompanied by the proper units.**

4. Clearly identify the final results by enclosing answers within boxes or by double underlining. Some problems may require one or more sketches or plots.

**Academic Integrity Statement:**

Students will adhere to the academic policy set forth by the University Code of Student Conduct (http://www.ncsu.edu/policies/student_services/student_discipline/POL11.35.1.php). Plagiarism and cheating are attacks on the very foundation of academic life, and cannot be tolerated within universities. Section eight (8) of the Code defines academic dishonesty and provides information on potential sanctions for violators of academic integrity. You will be asked to sign the following statement on each test and the final: “I have neither given nor received any unauthorized assistance on this test.”

**Students with Disabilities:**

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653 (http://www.ncsu.edu/provost/offices/affirm_action/dss/). For more information on NC State’s policy on working with students with disabilities, please see http://www.ncsu.edu/policies/academic_affairs/courses_undergrad/REG02.20.1.php.