ARCH 324 - Structures 2, Winter 2009

von Buelow, Peter

<http://hdl.handle.net/2027.42/64938>
http://hdl.handle.net/2027.42/64938
Unless otherwise noted, the content of this course material is licensed under a Creative Commons Attribution 3.0 License.  
http://creativecommons.org/licenses/by/3.0/

© 2009, Peter Von Buelow

You assume all responsibility for use and potential liability associated with any use of the material. Material contains copyrighted content, used in accordance with U.S. law. Copyright holders of content included in this material should contact open.michigan@umich.edu with any questions, corrections, or clarifications regarding the use of content. The Regents of the University of Michigan do not license the use of third party content posted to this site unless such a license is specifically granted in connection with particular content. Users of content are responsible for their compliance with applicable law. Mention of specific products in this material solely represents the opinion of the speaker and does not represent an endorsement by the University of Michigan. For more information about how to cite these materials visit https://open.umich.edu/education/about/terms-of-use.

Any medical information in this material is intended to inform and educate and is not a tool for self-diagnosis or a replacement for medical evaluation, advice, diagnosis or treatment by a healthcare professional. You should speak to your physician or make an appointment to be seen if you have questions or concerns about this information or your medical condition. Viewer discretion is advised: Material may contain medical images that may be disturbing to some viewers.
ARCHITECTURAL STRUCTURES II
Syllabus
Winter 2009
http://www.umich.edu/~arch324

CATALOG DESCRIPTION
This course covers the basic principles of elastic behavior for different materials such as wood, steel, concrete and composite materials, and compares the properties and applications of materials generally. It investigates cross sectional stress and strain behavior in flexure and in shear, and torsion as well as the stability of beams and columns. The qualitative behavior of combined stresses and fracture in materials is also covered. Prerequisite: ARCH 314

OBJECTIVES
Students are introduced to the fundamentals of analysis and design of simple structural members in steel, wood and concrete. Basic code requirements strength, stability and serviceability are discussed. Principles of composite materials design, structural continuity, and combined stresses are covered.

ORGANIZATION
A series of lectures are regularly given on each Monday and Friday. The lectures cover concepts and procedures, including demonstrations. Each Wednesday the class is broken into smaller sections for recitation in which problems can be solved with more student/instructor interaction. Solutions to homework problems are entered online through the course website. Three tests are used to measure student comprehension of the material. In addition a construction/testing project is used to allow students an opportunity to apply concepts to a physical design. Computer facilities, including software, are available for supporting computations. Facility and equipment for structural model testing is also available.

EVALUATION
Evaluation is based upon three tests (39%), a series of home work problems (48%), and a construction/testing project (13%). All work will be set on a 100 point scale with a full range of letter grades assigned.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100 – 93.0</td>
</tr>
<tr>
<td>A-</td>
<td>92.9 – 90.0</td>
</tr>
<tr>
<td>B</td>
<td>86.9 – 83.0</td>
</tr>
<tr>
<td>B-</td>
<td>82.9 – 80.0</td>
</tr>
<tr>
<td>C</td>
<td>76.9 – 73.0</td>
</tr>
<tr>
<td>C-</td>
<td>72.9 – 70.0</td>
</tr>
<tr>
<td>D</td>
<td>66.9 – 63.0</td>
</tr>
<tr>
<td>D-</td>
<td>62.9 – 60.0</td>
</tr>
<tr>
<td>E</td>
<td>59.9 – 0.0</td>
</tr>
</tbody>
</table>

By University policy the minimum passing grade is a D (63.0).

LECTURES AND EXERCISES
Solutions to exercises (example problems from the text) are provided in the course pack. These as well as lecture slides are also available on the course web site. In addition, the lectures will be recorded and posted to the web site. Students are expected to review any lectures which they miss. The exercises will not be collected or scored, but solutions can be discussed in the Wednesday recitation sessions or by appointment with GSI’s.

PROBLEMS
A set of homework problems covering the primary aspects of the course will be given to each student. Each student will have a unique set of problems to solve. Students submit solutions online for scoring. Each problem may be worked up to 3 times (3 different data sets) for credit. The best score from one of the 3 trials will be recorded. Late problems will be penalized at -5% per day up to a maximum of -35%. Problems are accessed through the course web site. A FAQ which explains the policy concerning the problems is also posted.

PROJECT
A group project to design, construct and test a compression structure will be assigned during the course. It will be documented with both a preliminary and a report which together count 13% of the final grade.

TEXT
The required text is Structural Principles, by I. Engel. (Prentice Hall, 1984). A course pack is available at the TCAUP Media Center. Additional material will be posted to the course web site http://www.umich.edu/~arch324.