SCHOOL OF CIVIL AND ENVIRONMENTAL
ENGINEERING

Semester 2 - 2008

CVEN 2302 MATERIALS AND STRUCTURES

COURSE DETAILS

Units of Credit 6
Contact hours 5 hours per week
Class Tuesdays 9.00 – 11.00 hrs
Thursdays 1200 - 1300 hrs
Tutorial Thursdays 1300 – 1500 hrs
Course Convenor Dr.N.Gowripalan
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Phone: 9385 5146
Additional Lecturers: Dr Wei Gao
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Room: 608
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INFORMATION ABOUT THE COURSE

Materials and Structures is a new course introduced in 2007 in the Second Year, as a continuation of Engineering Materials and Chemistry (MATS 1101) in the First Year. In Materials and Structures (CVEN 2302), topics on Concrete and Composites will be introduced in the 'materials strand'. Areas such as mechanical properties, durability and applications will be covered. In 'structures area', considerations such as loading types, fundamentals of design of tension and compression members will be dealt with. Both materials and structures will be taught for two groups of students in parallel classes. After 6 weeks, the student groups will be interchanged to follow the other strand.

The relationship between this subject and the subjects in previous and forthcoming years is shown below:
HANDBOOK DESCRIPTION


OBJECTIVES

To introduce students to the structural materials such as concrete, composites and fundamentals of design of tension, compression members.

TEACHING STRATEGIES

<table>
<thead>
<tr>
<th>Private Study</th>
<th>Lectures</th>
<th>Tutorials</th>
<th>Assessments (quiz/exam)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review lecture material</td>
<td>Listen carefully and ask questions</td>
<td>Work in groups</td>
<td>Demonstrate your understanding of material behaviour</td>
</tr>
<tr>
<td>Do tutorial problems</td>
<td>Try and understand the principles</td>
<td>Preparing for assignments</td>
<td>Demonstrate your understanding of design</td>
</tr>
<tr>
<td>Reflect on class and tutorial problems</td>
<td>Follow worked examples</td>
<td>Ask questions</td>
<td>Hand-in or Quiz</td>
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</tbody>
</table>
EXPECTED LEARNING OUTCOMES

- To be able to understand the behaviour of structural materials.
- To be able to assess material suitability for structures in civil engineering.
- To be able to apply the fundamentals learnt in this course to real engineering problems in large scale concrete, composite or steel structures such as tall buildings and bridges.

For each hour of contact it is expected that a student will put in at least 1.5 hours of private study.

ASSESSMENT

There will be a formal examination in November. The final examination will have two parts: Section A – Materials and Section B - Structures. This examination will represent 60% of the mark and a class mark representing 40% of the mark will be assessed on the quiz/tutorials submitted.

COURSE PROGRAM

The following topics will be covered.

Materials Strand

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L1 – Introduction, Cements</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>L2 – Aggregates and Admixtures</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>L3- Fresh Concrete Properties</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>L4- Hardened Concrete Properties</td>
<td>Quiz 1</td>
</tr>
<tr>
<td>5</td>
<td>L5- Fibre Reinforced Polymers (FRP)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>L6- FRP Design and Applications</td>
<td>Quiz 2</td>
</tr>
</tbody>
</table>

Structures Strand

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction, Limit state design</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Permanent actions (dead loads), Imposed actions</td>
<td>Hand in 1 due</td>
</tr>
<tr>
<td></td>
<td>(live loads)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Wind actions, Introduction to steel structures</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Design of tension members</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Design of compression members</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Steel beams, Simple steel connections</td>
<td>Hand in 2 due</td>
</tr>
</tbody>
</table>

Same schedule will be repeated from weeks 7-12.
**RELEVANT RESOURCES**

**Text Books:**

**Materials**

**Structures**

**Recommended Reading:**

**DATES TO NOTE**

Refer to MyUNSW for important Details in 2008 available at:
https://my.unsw.edu.au/student/resources/KeyDates.html

**NOTES ON ASSESSMENT**

**PLAGIARISM**

Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise are also liable to disciplinary action, including exclusion from enrolment.

Plagiarism is the use of another person’s work or ideas as if they were your own. When it is necessary or desirable to use other people’s material you should adequately acknowledge whose words or ideas they are and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:
http://www.lc.unsw.edu.au/onlib/plag.html

**COMMON SCHOOL INFORMATION**

For information about:

- Notes on assessments and plagiarism
- School policy
- Special Considerations
- Solution to Problems
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC
Refer to Common information on the School website available at: