The University of Southern Queensland

Course Specification

Description: Structural Design II

<table>
<thead>
<tr>
<th>Subject</th>
<th>Cat-Nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
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<tr>
<td>CIV</td>
<td>4508</td>
<td>20615</td>
<td>1, 2003</td>
<td>EXT</td>
<td>1.00</td>
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Academic Group: FOENS
Academic Org: FOES03
HECS Band: 2
ASCED Code: 030903

STAFFING

Examiner: David Wood
Moderator: Amar Khennane

PRE-REQUISITES

Pre-requisite: CIV3506

OTHER-REQUISITES

Prerequisites 70670

SYNOPSIS

This final year design Course represents the end point of many other Courses including particularly, Engineering Statics, Stress Analysis, Structural Design 1, Concrete Structures and Structural Analysis 1. There is little new theory developed in this Course but rather it makes use of the knowledge and skills that you have developed in those earlier Courses and applies them to the design of some standard structural systems and building types. The work covered in this Course is very similar to that which you could expect to be doing in your early years as a graduate engineer. To prepare you for such work the Course makes extensive use of computer packages to assist with estimating loads, analysing structures and estimating their capacity to carry the design loads. The Course material is presented in parallel to two major design projects one for a reinforced concrete framed office block and the other for a steel framed industrial shed. In both cases you will start by considering a set of client requirement and work through to a complete building design. You will find that the challenge in this Course is in developing an appreciation of the overall design process rather than focussing on specific aspects as is the case with most earlier Courses. While this is a structural engineering design Course you should find that the overall design process as developed is largely applicable to any other civil design process.
OBJECTIVES
On completion of the course, students should be able to:

- have an overview of the complete civil engineering design cycle;
- be able to approach engineering problem solving in a structured manner; firstly defining problems, then solving them utilising basic scientific and engineering principles;
- be able to interpret drawings and prepare three-dimensional sketches as part of the design process;
- have some experience in evaluating the effectiveness of solutions to structural problems;
- develop competence in the use of typical design office computer software and a responsible attitude to checking its validity.

TOPICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>1. Masonry Design</td>
<td>3.00</td>
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<tr>
<td>2. Structural Form and Past Practice Solutions</td>
<td>14.00</td>
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<tr>
<td>3. Advanced Loading Evaluation</td>
<td>10.00</td>
</tr>
<tr>
<td>4. Design Practice in Steel</td>
<td>35.00</td>
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<tr>
<td>5. Design Practice in Concrete and Masonry</td>
<td>35.00</td>
</tr>
<tr>
<td>6. Unified Building Code</td>
<td>3.00</td>
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</table>

TEXT and MATERIALS required to be PURCHASED or ACCESSED:

Books can be ordered by fax or telephone. For costs and further details use the 'Book Search' facility at http://bookshop.usq.edu.au by entering the author or title of the text.

1998, Australian Standards for Civil Engineering Students: AS HB2.2 Structural Engineering, Standards Australia,
(Or current edition.)
Steel Reinforcement Institute of Australia Reinforcement Concrete Manual,

REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Building Code of Australia
Gorenc B E, Tinyou R and Syam A Steel Designers Handbook, NSW Uni Press Ltd,
Hogan T J and Thomas I R Design of Structural Connections, AISC,
Warner R F, Rangan B V, Hall A S and Faulkes K A Concrete Structures, Longman,
STUDENT WORKLOAD REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>77</td>
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<tr>
<td>Directed Study</td>
<td>51</td>
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<tr>
<td>Examinations</td>
<td>3</td>
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<td>Private Study</td>
<td>24</td>
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ASSESSMENT DETAILS

<table>
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<tr>
<th>Description</th>
<th>Marks Out of</th>
<th>Wtg(%)</th>
<th>Required</th>
<th>Due Date</th>
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<tr>
<td>ASSIGNMENT 1</td>
<td>250.00</td>
<td>25.00</td>
<td>Y</td>
<td>17 Apr 2003</td>
</tr>
<tr>
<td>ASSIGNMENT 2</td>
<td>250.00</td>
<td>25.00</td>
<td>Y</td>
<td>30 May 2003</td>
</tr>
<tr>
<td>3 HOUR RESTRICTED/OPEN EXAM</td>
<td>500.00</td>
<td>50.00</td>
<td>Y</td>
<td>END S1</td>
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</table>

NOTES:
- Student Administration will advise students of the dates of their examinations during the semester.

IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:
There are no attendance requirements for this course. However, it is the students' responsibility to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.

2 Requirements for students to complete each assessment item satisfactorily:
To complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available (or at least a grade of C-) for each assessment item.

3 Penalties for late submission of required work:
If students submit assignments after the due date without prior approval then a penalty of 10% of the total marks available for the assignment will apply for each working day late.

4 Requirements for student to be awarded a passing grade in the course:
To be assured of a passing grade, students must demonstrate, via the summative assessment items, that they have achieved the required minimum standards in relation to the objectives of the course by satisfactorily completing all summative assessment items (the examination and assignments), as stated in 2 above.

5 Method used to combine assessment results to attain final grade:
The final grades for students will be assigned on the basis of the weighted aggregate of the marks (or grades) obtained for each of the summative assessment items in the course.

6 Examination information:
The examination in this course is a combined examination. Part A is a Restricted examination of 1 1/2 hour duration and 250 marks have been allocated for this part. Part B is an Open examination of 1 1/2 hours duration and 250 marks have been allocated for this part. In a Restricted Examination, candidates are allowed access to specific materials during the examination. The only materials that candidates may use in the restricted examination for this course are: writing materials (non-electronic and free from material which could give the student an unfair advantage in the examination); a hand-held, battery-operated calculator (students must indicate on their examination paper the make and model of any calculator(s) they use during the examination). In an Open Examination, candidates may have access to any material during the examination except the following: electronic communication devices, bulky materials, devices requiring mains power and material likely to disturb other students.

7 Examination period when Deferred/Supplementary examinations will be held:
Any Deferred or Supplementary examinations for this course will be held during the examination period at the end of the semester of the next offering of this course.

8 University Regulations:
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL: http://www.usq.edu.au/SECARIAT/calendar/Part5/ or in the printed version of the current USQ Handbook.

ASSESSMENT NOTES

1 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner.

2 Students must retain a copy of each item submitted for assessment. This must be produced within five days if required by the Examiner.

3 In accordance with University's Assignment Extension Policy (Regulation 5.6.1), the examiner of a course may grant an extension of the due date of an assignment in extenuating circumstances.

4 The Faculty will normally only accept assessments that have been written, typed or printed on paper-based media.

5 The Faculty will NOT accept submission of assignments by facsimile.

6 Students who do not have regular access to postal services or who are otherwise disadvantaged by these regulations may be given special consideration. They should contact the examiner of the course to negotiate such special arrangements.

7 In the event that a due date for an assignment falls on a local public holiday in their area, such as a Show holiday, the due date for the assignment will be the next day.
Students are to note on the assignment cover the date of the public holiday for the Examiner's convenience.

8 Students who have undertaken all of the required assessments in a course but who have failed to meet some of the specified objectives of a course within the normally prescribed time may be awarded the temporary grade: IM (Incomplete - Make up). An IM grade will only be awarded when, in the opinion of the examiner, a student will be able to achieve the remaining objectives of the course after a period of non-directed personal study.

9 Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded IDS (Incomplete - Deferred Examination; IDM (Incomplete Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).

10 The Faculty of Engineering and Surveying does not offer supplementary examinations.

OTHER REQUIREMENTS

1 Students will require access to e-mail and internet access to USQConnect for this course.