The University of Southern Queensland

Course specification

The current and official versions of the course specifications are available on the web at <http://www.usq.edu.au/coursespecification/current>

Please consult the web for updates that may occur during the year.

**Description: Design of Offshore Wharves and Jetties**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Cat-nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
<th>Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG</td>
<td>8805</td>
<td>79517</td>
<td>2008</td>
<td>WEB</td>
<td>1.00</td>
<td>Toowoomba</td>
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</table>

**Academic group:** FOENS

**Academic org:** FOES05

**Student contribution band:** 2

**ASCED code:** 039999

**STAFFING**

Examiner: Charles Tranberg
Moderator: John Worden

**RATIONALE**

The design of offshore wharves is critical to Australia's export industry. This course provides background to the design of these complex structures and guidance on appropriate design procedures.

**SYNOPSIS**

Much of the design work associated with offshore berths has been pioneering, and a body of knowledge has grown locally with respect to design parameters and loadings, and associated load factors, which can be applied in the design of such structures. The design process is not supported by codes of practice in the main, and research has been the province of diverse disciplines, not directly conversant with or interested in the other fields of learning required to totally encompass the spectrum of skills and knowledge required. It has therefore fallen largely to the practitioners to formulate prediction methods and adopt appropriate theories and levels of risk in the design process. In particular, the array of disciplines and skills which need to be assembled and assessed encompass: Geotechnical behaviour of the submarine seabed conditions; Synoptic forecasts and hindcasting of extreme and predominant weather conditions; Ocean wave hindcasting; Wave refraction, diffraction and reflection analysis; Wave structure interaction; Structure foundation interaction; Moored vessel response and berth availability analysis.

**OBJECTIVES**

The course objectives define the student learning outcomes for a course. For this course all objectives will be assessed on the basis of assignments. On completion of the course, students should:

1. Be aware of the types of bulk loading systems used offshore and their comparative merits
2. Know the important principal dimensions of classes of bulk carriers as these effect design of the wharf and moorings
3. Be able to assess loads to the wharf and moorings, the major different loads being due to environmental loads (wind, wave and current importantly), loads due to the berthing vessel, and mooring loads
4. Be able to compute water level combinations due to tide and storm surge and the probability of occurrence
5. Be able to calculate wave crest levels in combination with the above for design, and compute the probability of occurrence
6. Have a logical method of combining load cases with appropriate load factors
7. Have an appreciation of structural framing systems suitable for wharf, dolphins and approach jetties
8. Be able to analyse and design such framing systems
9. Have examined structural details in use in such structures and have come to conclusions as to their effectiveness
10. Know the construction methods that may be used, and consider these in the design
11. Be able to join a design team involved in offshore wharves and jetties with confidence

**TOPICS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>1. Background information</td>
<td>5.00</td>
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<tr>
<td>2. Preliminary studies</td>
<td>5.00</td>
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<tr>
<td>3. Permanent and imposed loads</td>
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<td>4. Wave and current loading</td>
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<td>5. Vessel loading</td>
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<td>6. Combined loads</td>
<td>10.00</td>
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<tr>
<td>7. Design of marine piling</td>
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<tr>
<td>8. Concrete in marine environments</td>
<td>5.00</td>
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</table>

**TEXT and MATERIALS required to be PURCHASED or ACCESSED**

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at http://bookshop.usq.edu.au click 'Semester', then enter your 'Course Code' (no spaces).

To be advised

**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.

To be advised
STUDENT WORKLOAD REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessments</td>
<td>55.00</td>
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<tr>
<td>Directed Study</td>
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<tr>
<td>Private Study</td>
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ASSESSMENT DETAILS

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks out of</th>
<th>Wtg (%)</th>
<th>Due date</th>
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<tr>
<td>ASSIGNMENT 2</td>
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<td>ASSIGNMENT 3</td>
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<td>ASSIGNMENT 4</td>
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<td>45.00</td>
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</table>

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 satisfactorily complete an assessment item a student must achieve at least 50% of the marks or a grade of at least C-. Refer to Statement 4 below for the requirements to receive a passing grade in this course.

3 Penalties for late submission of required work:
   If students submit assignments after the due date without prior approval then a penalty of 5% 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 receiving a passing grade a student must achieve at least 50% of the total weighted marks available for the course.

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:
   There is no final examination for any of the four courses in this program.

7 Examination period when Deferred/Supplementary examinations will be held:
   As there are no examinations in this course, there will be no deferred or supplementary examinations.

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.
ASSESSMENT NOTES

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

2 Students must retain a copy of each item submitted for assessment. This must be dispatched to USQ within 24 hours 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 In this course students may submit assignments electronically in the format specified in the assignment requirements.

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

6 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.

7 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.

8 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. The following temporary grade may be awarded: IDM (Incomplete Deferred Make-up).

OTHER REQUIREMENTS

1 Students must have access to e-mail and internet access to USQConnect for this course.