The University of Southern Queensland

Course Specification

Description: Introduction to Engineering Design

<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>
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<tr>
<td>ENG</td>
<td>1100</td>
<td>21099</td>
<td>1, 2003</td>
<td>ONC</td>
<td>1.00</td>
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Academic Group: FOENS
Academic Org: FOENSV
HECS Band: 2
ASCED Code: 020115

STAFFING
Examiner: Harold Greer
Moderator: David Wood

SYNOPSIS
The rationale for this course is to motivate students by fostering creativity and introducing conceptual design, computer aided design and drafting early in the course. Early training and practice in the engineering design method, the introduction to engineering handbooks and commercial catalogues is necessary for a foundation to which students can relate future studies in the more advanced courses of the course. Engineers need skills in graphical communication and spatial vision in the practice of their profession.

OBJECTIVES
On completion of this course, students should be able to:

- demonstrate basic drafting skills using drafting equipment, free hand sketching and computer aided drafting software;
- prepare and read drawings in orthographic projection;
- construct auxiliary views;
- prepare: (a) mechanical working drawings; (b) civil engineering drawings; (c) survey drawings; (d) electrical drawings;
- produce drawings of simple objects in pictorial views;
- use the terminology of common engineering components;
- apply creative problem solving techniques to engineering problems;
- communicate proposed solutions to engineering problems in oral and/or written reports;
- design and construct solutions to simple conceptual design problems;
- demonstrate effective team participation.
### TOPICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>1. Basic skills of drafting</td>
<td>7.00</td>
</tr>
<tr>
<td>2. Sketching common engineering details</td>
<td>5.00</td>
</tr>
<tr>
<td>3. Pictorial views</td>
<td>6.00</td>
</tr>
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<td>4. Orthographic projection</td>
<td>5.00</td>
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<tr>
<td>5. Auxiliary views</td>
<td>5.00</td>
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<tr>
<td>6. Common engineering terminology</td>
<td>3.00</td>
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<tr>
<td>7. Selection of common engineering components</td>
<td>3.00</td>
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<tr>
<td>8. Mechanical Working Drawings</td>
<td>7.00</td>
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<tr>
<td>9. Civil Drawings</td>
<td>9.00</td>
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<td>10. Survey Drawings</td>
<td>9.00</td>
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<tr>
<td>11. Electrical Drawings</td>
<td>5.00</td>
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<td>12. The creative process</td>
<td>6.00</td>
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<td>13. Human factors in design</td>
<td>6.00</td>
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<td>14. The design process</td>
<td>6.00</td>
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<td>15. Design Review</td>
<td>6.00</td>
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<tr>
<td>16. Design and Construct</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.

*ENG1100 Engineering Design and Drafting Study Book 2*, USQ Publication,

### 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.

Krick, E. *An Introduction to Engineering Concepts, Methods and Issues*, John Wiley & Sons,
STUDENT WORKLOAD REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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<tbody>
<tr>
<td>Assessment</td>
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</tr>
<tr>
<td>Lectures</td>
<td>26</td>
</tr>
<tr>
<td>Private Study</td>
<td>54</td>
</tr>
<tr>
<td>Tutorial</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>CONCEPTUAL DESIGN</td>
<td>200.00</td>
<td>20.00</td>
<td>Y</td>
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<tr>
<td>DRAFTING ASSIGNMENT 1</td>
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<td>35.00</td>
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<td>DESIGN AND CONSTRUCT</td>
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<td>15.00</td>
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<tr>
<td>DRAFTING ASSIGNMENT 2</td>
<td>300.00</td>
<td>30.00</td>
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<td>13 Jun 2003</td>
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IMPORTANT ASSESSMENT INFORMATION

1. Attendance requirements:
   It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and 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 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 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:
   There is no examination in this course.
7 Examination period when Deferred/Supplementary examinations will be held:
Not applicable.

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 This is a communication benchmark course and a major component of the
assessment of this course will be associated with the demonstration of
communication skills.