



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: Introduction to Engineering Design

| Subject | Cat-nbr | Class | Term | Mode | Units | Campus |
|---------|---------|-------|---------|------|-------|-----------|
| ENG | 1100 | 90534 | 2, 2009 | EXT | 1.00 | Toowoomba |

| | |
|-----------------------------------|--------|
| Academic group: | FOENS |
| Academic org: | FOENSV |
| Student contribution band: | 2 |
| ASCED code: | 020115 |

STAFFING

Examiner: Selvan Pather
Moderator: Peter Penfold

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 program. Engineers need skills in graphical communication and spatial vision in the practice of their profession.

OBJECTIVES

The course objective define the student learning outcomes for a course. The assessment item(s) that may be used to assess student achievement of an objective are shown in parenthesis. On completion of this course, students should be able to:

1. demonstrate basic drafting skills using free hand sketching and computer aided drafting software (Assignment 1);
2. prepare and read drawings in orthographic projection (Assignment 1);
3. construct auxiliary views (Assignment 1);
4. prepare: (a) mechanical working drawings; (b) civil engineering drawings; (c) survey drawings; (d) electrical drawings (Assignment 1, Assignment 2, Assignment 3);
5. produce drawings of simple objects in pictorial views (Assignment 1);
6. accurately interpret standard engineering drawings (Assignment 1, Assignment 3);
7. use the terminology of common engineering components (Assignment 1, Assignment 2, Assignment 3);
8. apply creative problem solving techniques to engineering problems (Assignment 2);
9. communicate proposed solutions to engineering problems in oral and/or written reports (Assignment 2);
10. design solutions to simple conceptual design problems (Assignment 2)
11. demonstrate effective team participation (Assignment 1, Assignment 2, Assignment 3).

TOPICS

| | Description | Weighting (%) |
|-----|--|---------------|
| 1. | Basic skills of drafting | 7.00 |
| 2. | Sketching common engineering details | 5.00 |
| 3. | Pictorial views | 6.00 |
| 4. | Orthographic projection | 5.00 |
| 5. | Auxiliary views | 5.00 |
| 6. | Common engineering terminology | 3.00 |
| 7. | Selection of common engineering components | 3.00 |
| 8. | Mechanical Working Drawings | 7.00 |
| 9. | Civil Drawings | 9.00 |
| 10. | Survey Drawings | 9.00 |
| 11. | Electrical Drawings | 5.00 |
| 12. | The creative process | 6.00 |
| 13. | Human factors in design | 6.00 |
| 14. | The design process | 6.00 |
| 15. | Design Review | 6.00 |
| 16. | Design Project | 12.00 |

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).

2D CAD software package (refer to Introductory Book for details).
(2D CAD software package (refer to Introductory Book for details).)

Boundy, AW 2007, *Engineering drawing*, 7th edn, McGraw Hill,

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.

Dandy, et al 2008, *Planning and design of engineering systems [electronic resource]*, 2nd edn, Taylor & Francis,

Madsen, DA 2007, *Engineering drawing and design*, 4th edn, Thomson/Delmar Learning,

Yarwood, A 2007, *Introduction to AutoCAD 2008 [electronic resource]*, Elsevier,

STUDENT WORKLOAD REQUIREMENTS

| ACTIVITY | HOURS |
|----------------|-------|
| Assessments | 49.00 |
| Directed Study | 52.00 |
| Private Study | 54.00 |

ASSESSMENT DETAILS

| Description | Marks out of | Wtg (%) | Due date |
|--------------|--------------|---------|-------------|
| ASSIGNMENT 1 | 300.00 | 30.00 | 04 Sep 2009 |
| ASSIGNMENT 2 | 300.00 | 30.00 | 02 Oct 2009 |
| ASSIGNMENT 3 | 400.00 | 40.00 | 30 Oct 2009 |

IMPORTANT ASSESSMENT INFORMATION

- 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.
- Requirements for students to complete each assessment item satisfactorily:**

To satisfactorily complete an individual assessment item a student must achieve at least 50% of the marks or a grade of at least C-. (Depending upon the requirements in Statement 4 below, students may not have to satisfactorily complete each assessment item to receive a passing grade in this course.)
- Penalties for late submission of required work:**

If students submit assignments after the due date without extenuating circumstances then a penalty of 5% of the assigned mark may apply for each working day late up to a maximum of ten working days at which time a mark of zero can be recorded for that assignment.
- Requirements for student to be awarded a passing grade in the course:**

To be assured of receiving a passing grade in a course a student must obtain at least 50% of the total weighted marks for the course.
- 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.
- Examination information:**

There is no examination in this course.
- Examination period when Deferred/Supplementary examinations will be held:**

Not applicable.
- 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/corporateservices/calendar/part5.htm> or in 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 despatched 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 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.