



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	Term	Mode	Units	Campus
ENG	1100	1, 2010	EXT	1	Toowoomba

<b>Academic group:</b>	FOENS
<b>Academic org:</b>	FOENSV
<b>Student contribution band:</b>	2
<b>ASCED code:</b>	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, sustainable design in engineering, industrial 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. On completion of this course, students should be able to:

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

## TOPICS

	Description	Weighting (%)
1.	Basic skills of drafting	5.00
2.	Sketching common engineering details	5.00
3.	Orthographic projection	5.00
4.	Pictorial and auxiliary views	5.00
5.	Common engineering terminology	3.00
6.	Selection of common engineering components	3.00
7.	Mechanical working drawings	5.00
8.	Civil drawings	5.00
9.	Survey drawings	5.00
10.	Electrical drawings	3.00
11.	The design process	8.00
12.	The creative process	8.00
13.	Human factors in design	8.00
14.	Sustainable design in engineering	8.00
15.	Industrial design	8.00
16.	Design review	8.00
17.	Design project	8.00

## 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).)

Boudy, AW2007, *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.

AutoDesk2009, *Autodesk official training courseware (electronic resource)*,

Dandy, et al2008, *Planning and design of engineering systems [electronic resource]*, 2nd edn, Taylor & Francis,

Madsen, DA2007, *Engineering drawing and design*, 4th edn, Thomson/Delmar Learning,

McFarland, J2008, *AutoCAD 2009 and AutoCAD LT 2009 (electronic resource) : no experience required*, Wiley,

## 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	Objectives assessed	Graduate skill	Level assessed
ASSIGNMENT 1	300	30	26 Apr 2010	1, 2, 3, 4, 5, 6, 7		
ASSIGNMENT 2	300	30	17 May 2010	4, 7, 8, 9, 10, 11, 12		
ASSIGNMENT 3	400	40	11 Jun 2010	4, 6, 7		

## 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.

- 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/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 usual method of assessment submission for the Faculty is by written, typed or printed paper-based media (i) submitted to the Faculty Office for students enrolled in the course in the on-campus mode, or (ii) mailed to the USQ for students enrolled in the course in the external mode. The due date for the assessment is the date by which a student must (i) submit the assessment for students enrolled in the on-campus mode, or (ii) mail the assessment for students enrolled in the external mode.
- 5 The Faculty will NOT normally accept submission of assessments by facsimile or email.
- 6 If electronic submission of assessments is specified for the course, students will be notified of this in the course Introductory Book and on the USQ Study Desk. All required electronic submission must be made through the Assignment Drop Box located on the USQ Study Desk for the course, unless directed otherwise by the examiner of the course. The due date for an electronically submitted assessment is the date by which a student must electronically submit the assignment.
- 7 Students who do not have regular access to postal services for the submission of paper-based assessments, or regular access to Internet services for electronic submission, or are otherwise disadvantaged by these regulations may be given special consideration. They should contact the examiner of the course to negotiate such special arrangements prior to the submission date.
- 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.
- 11 Harvard (AGPS) is the referencing system required in this course. Students should use Harvard (AGPS) style in their assignments to format details of the information sources

they have cited in their work. The Harvard (AGPS) style to be used is defined by the USQ Library's referencing guide. <http://www.usq.edu.au/library/help/referencing/default.htm>

## **EVALUATION AND BENCHMARKING**

In meeting the University's aims to establish quality learning and teaching for all programs, this course monitors and ensures quality assurance and improvements in at least two ways. This course:

1. Conforms to the USQ Policy on Evaluation of Teaching, Courses and Programs to ensure ongoing monitoring and systematic improvement. 2. Forms part of the Bachelor of Engineering and/or Bachelor of Engineering Technology program and is benchmarked against the: - USQ accreditation/reaccreditation processes which include (i) stringent standards in the independent accreditation of its academic programs, (ii) close integration between business and academic planning, and (iii) regular and rigorous review; and - professional accreditation standards of Engineers Australia.