



The University of Southern Queensland

## Course specification

### Description: Solid Modelling

| Subject | Cat-nbr | Class | Term    | Mode | Units | Campus |
|---------|---------|-------|---------|------|-------|--------|
| MEC     | 2304    | 35001 | 2, 2004 | EXT  | 1.00  | TWMBBA |

|                                   |        |
|-----------------------------------|--------|
| <b>Academic group:</b>            | FOENS  |
| <b>Academic org:</b>              | FOES02 |
| <b>Student contribution band:</b> | 2      |
| <b>ASCED code:</b>                | 030701 |

### STAFFING

Examiner: Peter Penfold

Moderator: Chris Snook

### OTHER-REQUISITES

Recommended prior or concurrent study: ENG1100

### RATIONALE

Many graduates from engineering programs find employment in design areas where solid modelling software is used for design purposes and to produce working drawings. It is therefore appropriate for students to be instructed not only in the use of solid modelling software but also those modelling techniques that best facilitate design and preparation of subsequent working drawings.

### SYNOPSIS

This course will provide opportunities for students to develop skills in the use of feature based, parametric solid modelling. The course also develops the student's skills and confidence in those techniques and principles deemed to be essential for solid modelling. Furthermore, it aims to develop their awareness of the importance of modelling as a design, drafting, communications and manufacturing tool.

### OBJECTIVES

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

1. construct any given geometrical shape, conic section and develop any surface;
2. understand general solid modelling techniques employed in design and manufacture;
3. demonstrate proficiency in developing a solid model for an engineering product or device using a 'feature based' CAD system;

4. produce engineering assembly drawings and working detail drawings for an engineered product or device from a CAD solid model;
5. propose a solution to a given engineering problem which requires the production of a solid model and subsequent working drawings.

## TOPICS

|    | Description   | Weighting (%) |
|----|---|---------------|
| 1. | Geometric constructions and developments                | 10.00         |
| 2. | Features of mechanical components                       | 10.00         |
| 3. | Principles of feature based, parametric solid modelling | 40.00         |
| 4. | Assembly drawings                                       | 15.00         |
| 5. | Detail drawings   | 15.00         |
| 6. | Manufacturer's reference materials                      | 10.00         |

## 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).

Boundy, AW 2001, *Engineering Drawing*, 6th 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.

SAA HB3 Electrical and Electronic Drawing Practice for Students.

Engineering Drawing Handbook SAA-HB7 Standards Australia.

## STUDENT WORKLOAD REQUIREMENTS:

| ACTIVITY       | HOURS  |
|----------------|--------|
| Assessment     | 55.00  |
| Directed Study | 100.00 |

## ASSESSMENT DETAILS

| Description  | Marks out of | Wtg(%) | Due date    |
|--------------|--------------|--------|-------------|
| ASSIGNMENT 1 | 200.00       | 20.00  | 20 Aug 2004 |
| ASSIGNMENT 2 | 800.00       | 80.00  | 29 Oct 2004 |

## 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 20% 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 submit all of the summative assessment items and achieve at least 50% of the available weighted marks for those items. Students who do not qualify for a Passing grade may, at the discretion of the Examiner, be assigned additional work to demonstrate to the Examiner that they have achieved the required standard. It is expected that such students will have gained at least 45 % of the total marks available for all summative assessment items.
- 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/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).