



The University of Southern Queensland

## Course specification

This version produced 4 Jul 2008.

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: Database Design

| Subject | Cat-nbr | Class | Term    | Mode | Units | Campus    |
|---------|---------|-------|---------|------|-------|-----------|
| CIS     | 2002    | 62436 | 1, 2007 | ONC  | 1.00  | Toowoomba |

|                                   |        |
|-----------------------------------|--------|
| <b>Academic group:</b>            | FOBUS  |
| <b>Academic org:</b>              | FOB005 |
| <b>Student contribution band:</b> | 2      |
| <b>ASCED code:</b>                | 020303 |

### STAFFING

Examiner: Glen Van Der Vyver

### REQUISITES

Pre-requisite: CIS1000 Co-requisite: CIS2000

### OTHER REQUISITES

Students are required to have access to a personal computer, e-mail capabilities and Internet access to USQConnect. Current details of computer requirements can be found at <http://www.usq.edu.au/handbook/current/busgeninfo.html>

### RATIONALE

An essential component of a successful information system is usually a well designed and efficient database. It is important for those who wish to become information systems practitioners to have a sound understanding of database theory and current database trends. Furthermore, it is of crucial importance that information systems practitioners understand database design because databases are not only pervasive but are also becoming inexorably larger and more complex.

### SYNOPSIS

This course introduces students to relational database theory and design. Practical methodologies for data analysis, data modelling and database design are examined, coupled with a detailed study of the relational database model. Students will build practical skills in ER diagramming, normalisation and database design. Students will also be exposed to a range of topics in database theory and current database trends.

### OBJECTIVES

The course objectives define the student learning outcomes for a course. The assessment item/s that may be used to assess student achievement of an objective is/are shown in parentheses after each objective. On successful completion of this course, students should be able to:

1. describe and discuss the relational database model (Assignment, Examination)
2. describe, use and apply data analysis and modelling techniques, including ER diagramming and normalisation, and derive a relational database design (Assignment, Examination)
3. demonstrate an ability to analyse and justify database designs, with clear verbal and written statements of any assumptions about the data (Assignment, Examination)
4. demonstrate an understanding of current database theory and trends (Assignment, Examination).

## TOPICS

| Description                                  | Weighting (%) |
|--|---------------|
| 1. Database theory                           | 40.00         |
| 1.1. The database environment                |               |
| 1.2. Topics in database theory               |               |
| 2. Database design                           | 60.00         |
| 2.1. Data model                              |               |
| 2.2. Data analysis                           |               |
| 2.3. Relational model and relational algebra |               |
| 2.4. E.R. diagramming                        |               |
| 2.5. Normalisation                           |               |

## 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).

CIS2002 study package available from the USQ Bookshop.

D'Orazio, R & Happel, G 1996, *Practical data modelling for database design*, John Wiley & Sons, Milton, Queensland.

Hoffer, J, Prescott, B & McFadden, F 2005, *Modern database management*, 7th edn, Pearson/Prentice Hall, Upper Saddle River, New Jersey.

Lahey, H 2000, *Information systems developers handbook: a road map for students*, University of Southern Queensland, Toowoomba, Queensland.

(This handbook is available on the USQ website at <http://www.usq.edu.au/faculty/business/departments/infosys/isdhandbook.htm>)

Summers, J & Smith, B 2006, *Communication skills handbook: how to succeed in written and oral communication*, 2nd edn, John Wiley & Sons, Milton, Queensland.

## 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.

Date, CJ 2004, *An introduction to database systems*, 8th edn, Pearson/Addison Wesley, Boston, Massachusetts.

Elmasri, R & Navathe, SB 2007, *Fundamentals of database systems*, 5th edn, Pearson/Addison-Wesley, Boston, Massachusetts.

Finkelstein, C 1992, *Information engineering: strategic systems development*, Addison-Wesley, Sydney, New South Wales.

Kroenke, DM 2006, *Database processing: fundamentals, design and implementation*, 10th edn, Pearson Prentice-Hall, Upper Saddle River, New Jersey.

Rob, P & Coronel, C 2007, *Database systems design implementation and management*, 7th edn, Thomson/Course Technology, Boston, Massachusetts.

## STUDENT WORKLOAD REQUIREMENTS

| ACTIVITY      | HOURS  |
|---------------|--------|
| Lectures      | 22.00  |
| Private Study | 117.00 |
| Tutorials     | 22.00  |

## ASSESSMENT DETAILS

| Description        | Marks out of | Wtg(%) | Due date                    |
|--------------------|--------------|--------|-----------------------------|
| PRACTICAL TEST     | 100.00       | 10.00  | 05 Mar 2007<br>(see note 1) |
| ASSIGNMENT 1       | 100.00       | 10.00  | 23 Apr 2007                 |
| ASSIGNMENT 2       | 100.00       | 20.00  | 04 Jun 2007                 |
| 2 HOUR EXAMINATION | 100.00       | 60.00  | END S1<br>(see note 2)      |

### NOTES

1. STUDENTS: Practical test will be held during the last week of the teaching period.
2. The examination is scheduled to be held in the end-of-semester examination period. Students will be advised of the official examination date after the timetable has been finalised.

## 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 satisfactorily complete an individual assessment item a student must achieve at least 50% of the available marks . (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.)
- 3 Penalties for late submission of required work:  
If a student submits assignments or tutorial exercises after the due date without prior approval then a penalty of 10% of the total marks available for the assignment will apply for each working day late. The same penalty applies to students who submit later than the final day of an extension. No assignments will be accepted after model answers have been posted. Items submitted late are likely to be subject to processing delays.
- 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 assessment items, achieve at least 50% for the examination and 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 aggregate of the weighted marks obtained for each of the summative assessment items in the course.
- 6 Examination information:  
This is a closed examination. Candidates are allowed to bring only writing and drawing instruments into the examination.
- 7 Examination period when Deferred/Supplementary examinations will be held:  
Any Deferred or Supplementary examinations for this course will be held during the next examination period.
- 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>. Students should also read the Faculty of Business Guide to Policies and Procedures of the Faculty which can be found at the URL <http://www.usq.edu.au/handbook/current/buspolproc.html>.

## **ASSESSMENT NOTES**

- 1 Assignments: (i) The due date for an assignment is the date by which a student must submit the assignment to the USQ. (ii) Students must retain a copy of each item submitted for assessment. This must be produced within 24 hours if required by the examiner. (iii) In accordance with university policy, the examiner may grant an extension of the due date of an assignment in extenuating circumstances. (iv) The examiner will normally only accept assessments that have been written, typed or printed on paper-based media. (v) 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.
- 2 Course weightings: Course weightings of topics should not be interpreted as applying to the number of marks allocated to questions testing those topics in an examination paper.
- 3 Referencing in assignments: Unless otherwise directed by the examiner, all written and oral assignments submitted by students must conform to the guidelines laid out in the 'Communication skills handbook: how to succeed in written and oral communication' and 'Information systems developers handbook: a road map for students'. Any work not prepared

in accordance with these guidelines may be subject to penalty or requirement for resubmission.

- 4 Make-up work: 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.
- 5 Deferred work: 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).
- 6 Appeals: Any appeal against the award of a grade in the course will be conducted in accordance with university regulations. These regulations are published in the university handbook.

## **OTHER REQUIREMENTS**

- 1 Learning resources: Prescribed texts and materials (see above); recommended reference materials (see above); printed Introductory Book\*, Book/s of Selected Readings\*, and Study Book/s\*; and course Website accessible via USQConnect. \*part of the study package available from the USQ Bookshop
  - 2 E-mail and Internet access: Students will require access to e-mail and Internet access to USQConnect for this course.
  - 3 Some study materials and important information about the course will be made available via the online discussion group. Students are therefore expected to access the discussion group regularly and read all postings. Tutorial exercises will be assigned during tutorials and will be due seven days later. It is the responsibility of students to ascertain whether a tutorial exercise was assigned during a tutorial. These exercises will not be posted on the discussion group. The practical test is treated in the same way as an examination. Students who do not attend will receive a mark of zero unless they provide an appropriate reason with supporting documentation.
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