



**MONASH** University  
Information Technology

**FIT3128**  
**Database systems design**

**Unit Guide**

**Semester 2, 2011**

The information contained in this unit guide is correct at time of publication. The University has the right to change any of the elements contained in this document at any time.

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# **FIT3128 Database systems design - Semester 2, 2011**

This unit is designed to introduce students to the fundamental concepts necessary for the analysis, design, use and implementation of business information systems using relational database management systems. The main topics covered include requirements elicitation, systems analysis and design informed by a lifecycle based methodology, motivation for the database approach to managing information, conceptual modelling, coverage of logical process and data models, and the use of SQL and other facilities provided by database management systems.

## **Mode of Delivery**

Gippsland (Off-campus)

## **Contact Hours**

2 hrs lectures/wk, 2 hrs laboratories/wk

## **Workload**

For on-campus students, workload commitments are:

- two-hour lecture and
- two-hour studio (requiring advance preparation)
- a minimum of 2-3 hours of personal study per one hour of contact time in order to satisfy the reading and assignment expectations.
- You will need to allocate up to 5 hours per week in some weeks, for use of a computer, including time for newsgroups/discussion groups.

Off-campus students will not be expected to attend lectures or studio sessions, but lectures will be recorded and made available via both a unit Podcast (available through Moodle and at <http://podcast.infotech.monash.edu.au/fit9003>) as well as the Library's Monash University Lectures Online (MULO) service. All studio exercises and solutions will be posted to the unit's Moodle site (see below for access details), and some of the studio sessions themselves will be recorded and made available through the podcast. Off-campus students should plan to spend equivalent time working on these resources, and should seek advice from the lecturer when needed. Students are encouraged to post their studio solutions to the Moodle discussion forums for feedback.

## **Unit Relationships**

### **Prohibitions**

FIT1004, FIT9003, CSE9002, BUS3112, BUS4112, IMS9001, IMS9003, GCO9804, BUS9003, BUS5071, GCO3851

This unit is not available to any student enrolled in an FIT degree

### **Prerequisites**

Completion of 24 points at level 2

## **Chief Examiner**

Dr Shyh Wei Teng

## **Campus Lecturer**

### **Caulfield**

None provided

### **Gippsland**

**Shyh Wei Teng**

Contact hours: via email and discussion forum

# Academic Overview

## Learning Objectives

At the completion of this unit students will have -  
A knowledge and understanding of:

- the purpose of requirements specification, of functional modelling of processes and data, and of the database concept;
- the relational database model;
- how to apply integrity constraints and business rules to a system design and implementation based around an enterprise level database management system.

Developed attitudes that enable them to:

- understand business information systems as the implementation of company policies and objectives;
- respect the points of view of both technical and business actors in the system development process.

Developed the skills to:

- develop functional models of processes and data of the business problem scenario;
- design and implement a database;
- implement integrity constraints and business rules in a database;
- write queries in SQL to maintain and use a relational database.

Demonstrated the communication and teamwork skills necessary to:

- communicate requirements for business functionality in terms of data required, management of that data and its processing;
- work co-operatively in a professional systems development team.

## Graduate Attributes

Monash prepares its graduates to be:

1. responsible and effective global citizens who:
  - a. engage in an internationalised world
  - b. exhibit cross-cultural competence
  - c. demonstrate ethical values

critical and creative scholars who:

- a. produce innovative solutions to problems
- b. apply research skills to a range of challenges
- c. communicate perceptively and effectively

## Assessment Summary

Examination (3 hours): 70%; In-semester assessment: 30%

Assessment Task	Value	Due Date
Assignment 1a - Draft Conceptual Database Design	5%	Sunday, end of Week 6, 11.59pm
Assignment 1b - Database Design	20%	Sunday, end of Week 10, 11.59pm
Assignment 2 - Structured Query Language (SQL)	5%	Friday, Week 12, 11.59pm
Examination 1	70%	To be advised

## Teaching Approach

- **Lecture and tutorials or problem classes**

This teaching and learning approach provides facilitated learning, practical exploration and peer learning.

Lectures will be used to present theory and outline concepts that will be put to use in practice during the studio sessions.

- **Studio teaching**

Studio teaching is a facilitated active, participatory, peer learning approach.

Studios will allow students to discuss concepts and practice techniques covered in the lecture and assessed in the assignment work.

Exercises will be conducted in both lecture and studio sessions to allow students to practice the techniques taught.

## Feedback

### Our feedback to You

Types of feedback you can expect to receive in this unit are:

- Informal feedback on progress in labs/tutes
- Graded assignments with comments
- Solutions to tutes, labs and assignments
- Other: Online discussion forums with comments

### Your feedback to Us

Monash is committed to excellence in education and regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through SETU, Student Evaluation of Teacher and Unit. The University's student evaluation policy requires that every unit is evaluated each year. Students are strongly encouraged to complete the surveys. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

For more information on Monash's educational strategy, and on student evaluations, see: <http://www.monash.edu.au/about/monash-directions/directions.html>

<http://www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html>

## Previous Student Evaluations of this unit

If you wish to view how previous students rated this unit, please go to <https://emuapps.monash.edu.au/unitevaluations/index.jsp>

## Required Resources

A software drawing package such as Microsoft Visio (Windows); a copy of which can be obtained from the Faculty's IT service desk. You will need access to a computer running Windows to install a copy of Microsoft SQL Server Management Studio Express Edition (version 2005 or later, also available from the Faculty's IT service desk).

For work on the SQL tutorials and Assignment 2 from off-campus, you will need to install the Monash VPN software (details on the Moodle site).

To watch the podcasts you will need podcast software such as iTunes to download and play episodes. Alternatively, episodes can be manually downloaded with a web browser and watched using either iTunes or other video software such as VLC freely available from: <http://www.videolan.org/>

Information about how to obtain the relevant database software from Microsoft to allow connection to Monash's database server will also be provided via Moodle. You will need to install the Microsoft VPN software if you want to access the database server from off-campus (again, instructions will be provided on Moodle).

You will also need a web browser and Microsoft Word.

These are available for use in the University computer labs.

## Required Text

Weekly readings will be set from the following text throughout the semester:

Simsion, G.C. & Witt, G.C. (2005) *Data Modelling Essentials*, 3rd Edition, Morgan Kaufmann Publishers.

The text is available from the Campus bookstore, as well as in paperback from Amazon or as a Kindle eBook.

## Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Introduction to Systems and Databases	
2	ER Modelling Basics	
3	Conceptual, logical and physical models	
4	Advanced modelling techniques and the data dictionary	
5	The Consulting Process	
6	Normalisation 1	Assignment 1a due Sunday, end of Week 6, 11.59pm
7	Normalisation 2	
8	Introduction to SQL	
9	Advanced SQL and middleware	
10	Implementation	Assignment 1b due Sunday, end of Week 10, 11.59pm
11	Alternative Modelling Techniques	
12	Design	Assignment 2 due Friday, Week 12, 11.59pm
	SWOT VAC	No formal assessment is undertaken SWOT VAC
	Examination period	LINK to Assessment Policy: <a href="http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html">http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html</a>

\*Unit Schedule details will be maintained and communicated to you via your MUSO (Blackboard or Moodle) learning system.



# Assessment Requirements

## Assessment Policy

To pass a unit which includes an examination as part of the assessment a student must obtain:

- 40% or more in the unit's examination, and
- 40% or more in the unit's total non-examination assessment, and
- an overall unit mark of 50% or more.

If a student does not achieve 40% or more in the unit examination or the unit non-examination total assessment, and the total mark for the unit is greater than 50% then a mark of no greater than 49-N will be recorded for the unit

## Assessment Tasks

### Participation

#### • Assessment task 1

**Title:**

Assignment 1a - Draft Conceptual Database Design

**Description:**

This is the first submission for Assignment 1 where you will develop a complete specification for a database system. In this first part, you will develop a conceptual entity relationship diagram. You may also complete as much of the deliverable for Assignment 1b as you like for feedback from your tutor. The purpose of this assignment is to get feedback and refine your design before final submission in Assignment 1b.

**Weighting:**

5%

**Criteria for assessment:**

1. Quality of the introductory narrative overview
2. Quality of design solution, in particular level of support for business requirements outlined in the case, and elegance of solution
3. Correctness of notation
4. Quality and professionalism of presentation, including layout, structure and grammar

**Due date:**

Sunday, end of Week 6, 11.59pm

#### • Assessment task 2

**Title:**

Assignment 1b - Database Design

**Description:**

You will submit your final database design including conceptual model, normalised model, logical model and data dictionary, incorporating feedback from Assignment 1a in your design.

**Weighting:**

20%

**Criteria for assessment:**

## Assessment Requirements

1. Quality of the introductory narrative overview
2. Quality of design solution, in particular level of support for business requirements outlined in the case, and elegance of solution
3. Correctness of notation
4. Correctness of the normalisation process
5. Correctness and completeness of the data dictionary entries and assertion check-list
6. Quality and professionalism of presentation, including layout, structure and grammar

**Due date:**

Sunday, end of Week 10, 11.59pm

• **Assessment task 3**

**Title:**

Assignment 2 - Structured Query Language (SQL)

**Description:**

You will write a number of SQL queries and commands.

**Weighting:**

5%

**Criteria for assessment:**

Each SQL command will be assessed as to whether the output of the command achieves the task required or answers the business question asked.

**Due date:**

Friday, Week 12, 11.59pm

## Examinations

• **Examination 1**

**Weighting:**

70%

**Length:**

3 hours

**Type (open/closed book):**

closed book

**Electronic devices allowed in the exam:**

None

## Assignment submission

It is a University requirement

(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html>) for students to submit an assignment coversheet for each assessment item. Faculty Assignment coversheets can be found at <http://www.infotech.monash.edu.au/resources/student/forms/>. Please check with your Lecturer on the submission method for your assignment coversheet (e.g. attach a file to the online assignment submission, hand-in a hard copy, or use an online quiz).

## **Extensions and penalties**

Submission must be made by the due date otherwise penalties will be enforced.

You must negotiate any extensions formally with your campus unit leader via the in-semester special consideration process:

<http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html>.

## **Returning assignments**

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later

## Other Information

### Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University's academic standards, and to provide advice on how they might uphold them. You can find Monash's Education Policies at:

<http://policy.monash.edu.au/policy-bank/academic/education/index.html>

Key educational policies include:

- Plagiarism  
(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-policy.html>)
- Assessment  
(<http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-p>)
- Special Consideration  
(<http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.h>)
- Grading Scale  
(<http://www.policy.monash.edu/policy-bank/academic/education/assessment/grading-scale-policy.html>)
- Discipline: Student Policy  
(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-discipline-policy.html>)
- Academic Calendar and Semesters (<http://www.monash.edu.au/students/key-dates/>);
- Orientation and Transition (<http://www.infotech.monash.edu.au/resources/student/orientation/>);  
and
- Academic and Administrative Complaints and Grievances Policy  
(<http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy>)
- Codes of Practice for Teaching and Learning  
(<http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-tea>)

### Student services

The University provides many different kinds of support services for you. Contact your tutor if you need advice and see the range of services available at [www.monash.edu.au/students](http://www.monash.edu.au/students). The Monash University Library provides a range of services and resources that enable you to save time and be more effective in your learning and research. Go to <http://www.lib.monash.edu.au> or the library tab in my.monash portal for more information. Students who have a disability or medical condition are welcome to contact the Disability Liaison Unit to discuss academic support services. Disability Liaison Officers (DLOs) visit all Victorian campuses on a regular basis

- Website: <http://adm.monash.edu/sss/equity-diversity/disability-liaison/index.html>;
- Telephone: 03 9905 5704 to book an appointment with a DLO;
- Email: [dlu@monash.edu](mailto:dlu@monash.edu)
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus.