MONASH University
Information Technology

**FIT3128
Database systems design**

Unit Guide

Summer semester, 2012

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 - Summer semester, 2012

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.

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

For on-campus students:

Lectures: 2 hours per day (Mon to Thurs)

Tutorials/Lab Sessions: 2 hours per day (Mon to Thurs)

and minimum of 3-4 hours of personal study per teaching day for revision and completing assessment tasks.

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

Manoj Kathpalia

Academic Overview

Outcomes

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%	Assignment 1a due 3pm on November 23, 2012
Assignment 1b - Database Design	15%	Assignment 1b due 3pm on November 30, 2012
Assignment 2 - Structured Query Language (SQL)	10%	Assignment 2 due 3pm on December 07, 2012
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.

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

Student feedback has shown this unit is well structured.

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

Prescribed text(s)

Limited copies of prescribed texts are available for you to borrow in the library.

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

Examination material or equipment

Information on the exam will be available on the unit website.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Introduction to Databases	
2	Relational Data Model Basics	
3	Database Design I (ER Modelling Basics)	
4	Requirements Analysis Process	Assignment 1a due 3pm on November 23, 2012
5	Database Design II (Converting ER Model to Relational Model)	
6	Database Design III (Normalisation)	
7	SQL I	
8	SQL II	Assignment 1b due 3pm on November 30, 2012
9	SQL III	
10	Advanced SQL	
11	Physical Database Design Basics	
12	Advanced Database Design Considerations	Assignment 2 due 3pm on December 07, 2012
	SWOT VAC	No formal assessment is undertaken in SWOT VAC
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html

*Unit Schedule details will be maintained and communicated to you via your learning system.

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles
(http://www.infotech.monash.edu.au/resources/staff/edgov/policies/assessment-examinations/unit-assessment-hu

Academic Integrity - Please see the Demystifying Citing and Referencing tutorial at
http://lib.monash.edu/tutorials/citing/

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. Quality and professionalism of presentation, including layout, structure and
  >   grammar
  > 4. Correctness of notation

  Due date:
  > Assignment 1a due 3pm on November 23, 2012

- **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:
  > 15%

  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. Quality and professionalism of presentation, including layout, structure and grammar
4. Correctness of notation
5. Correctness of the normalisation process
6. Correctness and completeness of the data dictionary entries and assertion check-list

Due date:
Assignment 1b due 3pm on November 30, 2012

- **Assessment task 3**

Title:
Assignment 2 - Structured Query Language (SQL)
Description:
You will write a number of SQL queries and commands.
Weighting:
10%
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:
Assignment 2 due 3pm on December 07, 2012

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).

Online submission

If Electronic Submission has been approved for your unit, please submit your work via the learning system for this unit, which you can access via links in the my.monash portal.

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-po
- 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/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. For Sunway see http://www.monash.edu.my/Student-services, and for South Africa see http://www.monash.ac.za/current/

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. At Sunway, visit the Library and Learning Commons at http://www.lib.monash.edu.my/. At South Africa visit http://www.lib.monash.ac.za/.

Academic support services may be available for students who have a disability or medical condition. Registration with the Disability Liaison Unit is required. Further information is available as follows:

- Website: http://monash.edu/equity-diversity/disability/index.html;
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus
- Telephone: 03 9905 5704, or contact the Student Advisor, Student Commuity Services at 03 55146018 at Sunway