

FIT4038
Database management and implementation

Unit Guide

Semester 1, 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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FIT4038 Database management and implementation - Semester 1, 2011

This unit looks at the design and implementation issues of database management systems. Advanced database design using the object-relational approach and multi-dimensional database design are explored. Record, file and index structures are dealt with at the basic level. Higher level details of consistency, atomicity and durability are introduced along with modern trends in databases.

Mode of Delivery

Caulfield (Day)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

Workload commitments are:

- two-hour lecture and
- two-hour tutorial/laboratory
- 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 to access the Oracle databases.

Unit Relationships

Prohibitions

FIT3118, CSE3000

Prerequisites

FIT9019 or FIT9003

Knowledge of relational database principles, including SQL

Chief Examiner

David Taniar

Campus Lecturer

Caulfield

David Taniar

Tutors

Caulfield

Winy (Geng Zhao)

Jason (Kefeng Xuan)

Learning Objectives

At the completion of this unit students will be able to:

- understand object-relational database design;
- understand multi-dimensional database design;
- understand query optimisation and its impact on programming;
- understand the database management systems recovery, concurrency, and transaction management mechanisms;
- understand database trends and current research directions in database management;
- use design a complex database system; and
- use a database programming language to access a relational database system.

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): 60%; In-semester assessment: 40%

Assessment Task	Value	Due Date
Class test - Multidimensional, object-relational, and physical database design	10%	Week 8, Thursday 21 April 2011
	30%	

Teaching Approach

Lecture and tutorials or problem classes

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

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

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

You will need to access: Oracle DBMS.

On campus students may use this software which is installed in the computing labs.

Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook.

Unit Schedule

Week	Date*	Activities	Assessment
0	21/02/11		No formal assessment or activities are undertaken in week 0
1	28/02/11	Multidimensional Database Design: Introduction	
2	07/03/11	Multidimensional Database Design: Modelling	
3	14/03/11	Multidimensional Database Design: Queries	
4	21/03/11	Object-Relational Database Design: Design and Transformation	
5	28/03/11	Object-Relational Database Design: Manipulations	
6	04/04/11	Object-Relational Database Design: Advanced DW Design	
7	11/04/11	Physical Database Design	
8	18/04/11	Physical Database Design	Class test Week 8, Thursday 21 April 2011
Mid semester break			
9	02/05/11	Physical Database Design	
10	09/05/11	Semi-structured Database Design and Storage	
11	16/05/11	Semi-structured Database Design and Storage	Assignment due Week 11, Friday 20 May 2011
12	23/05/11	Semi-structured Database Design and Storage	
	30/05/11	SWOT VAC	No formal assessment is undertaken SWOT VAC

*Please note that these dates may only apply to Australian campuses of Monash University. Off-shore students need to check the dates with their unit leader.

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:

Class test - Multidimensional, object-relational, and physical database design

Description:

This is an individual class test. Case studies will be given as well.

Weighting:

10%

Criteria for assessment:

Students will be assessed on their understanding of multidimensional design, object-relational design, and physical database design.

Due date:

Week 8, Thursday 21 April 2011

• Assessment task 2

Title:

Assignment - Multidimensional, object-relational, and physical database design

Description:

Students will develop a database design incorporating multidimensional design, temporal design using object-relational methods, and query optimization. A case study will be given as well.

Weighting:

30%

Criteria for assessment:

Students will be assessed on their understanding of multidimensional design, object-relational design, and physical database design.

Due date:

Week 11, Friday 20 May 2011

Examinations

• Examination 1

Weighting:

60%

Length:

3 hours

Type (open/closed book):

Closed book

Electronic devices allowed in the exam:

None

Assignment submission

Assignment coversheets are available via "Student Forms" on the Faculty website:

<http://www.infotech.monash.edu.au/resources/student/forms/>

You MUST submit a completed coversheet with all assignments, ensuring that the plagiarism declaration section is signed.

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

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>)

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 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

- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus.

Reading List

Object-Oriented Oracle, Rahayu, Taniar, and Pardede, CyberTech, 2006

Database System Concepts, Silberschatz, Korth, and Sudarshan, 5th edition, McGraw Hill, 2006

Fundamentals of Database Systems, Elmasri, and Navathe, 5th edition, Addison Wesley, 2007

Database Systems: Design, Implementation and Management, Rob, and Coronel, 8th edition, Course Technology, 2007