FIT4038
Database management and implementation

Unit Guide

Semester 2, 2009

Last updated : 16 Jul 2009

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FIT4038 Database management and implementation - Semester 2, 2009

Chief Examiner:

None provided

Lecturer(s) / Leader(s):

Caulfield

Assoc Prof David Taniar

Contact hours: Fridays 4-5pm

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Introduction

Welcome to FIT4038 Database Design and Administration for Semester 2, 2009. This 6 point unit is a foundation to all technical master degrees in the Faculty of IT and an elective unit for all postgraduate programs in the Faculty of IT. This unit has been designed to provide you with an understanding of database design and administration. It explores many aspects of database design covering multidimensional database design, object-relational database design, physical database design, and semi-structured database design.

Unit synopsis

This unit is a second unit in databases, and looks at the design and implementation issues of database management systems. 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

Learning outcomes

At the completion of this unit students will:

1. be aware of how data is stored and indexed on disks given the architecture of disks and processing requirements
2. understand how a RDBMS processes a query
3. be able to explain how query processing can be done efficiently
4. understand how the requirements of transaction processing are met be an RDBMS
5. be aware of issues related to failure recovery
6. have an appreciation for the complexities involved in high performance databases

Contact hours

2 hours of lectures/week, 2 hours of tutorials/week

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

Prerequisites

FIT9019 or FIT9003
Knowledge of relational database principles, including SQL

Prohibitions

FIT3118, CSE3000

Relationships

FIT4038 is a core unit in the technical Master degrees in the Faculty of IT.

It is a prerequisite/corequisite for Before attempting this unit you must have satisfactorily completed

FIT9019 or FIT9003

, or equivalent. You should have knowledge of

knowledge of relational database principles, including SQL

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You may not study this unit and

FIT3118 CSE3000

in your degree.

Teaching and learning method

Timetable information

For information on timetabling for on-campus classes please refer to MUTTS, http://mutts.monash.edu.au/MUTTS/

Tutorial allocation

On-campus students should register for tutorials/laboratories using the Allocate+ system:
http://allocate.cc.monash.edu.au/

Unit Schedule

Week	Topic	Study guide	Key dates
1	Multidimensional Database Design: Introduction	Rob&Coronel Ch 9	
2	Multidimensional Database Design: Modelling	Rob&Coronel Ch 9	
3	Multidimensional Database Design: Queries	Rob&Coronel Ch 9	
4	Object-Relational Database Design: Design and Transformation	Object-Oriented Oracle textbook	
5	Object-Relational Database Design: Manipulations	Object-Oriented Oracle textbook	
6	Object-Relational Database Design: Advanced DW Design	Object-Oriented Oracle textbook	
7	Physical Database Design	Elmasri textbook	
8	Physical Database Design	Elmasri textbook	
9	Physical Database Design	Elmasri textbook	
10	Semi-structured Database Design and Storage		
Mid semester break			
11	Semi-structured database design and storage		
12	Semi-structured database design and storage		
13	Revision		

Unit Resources

Prescribed text(s) and readings

Object-Oriented Oracle, Rahayu, Taniar, and Pardede, CyberTech, 2006Rob & Coronel, Database Systems Fundamentals of Database Systems, Elmasri and Navathe, 5th edition, Addison Wesley, 2007, Database System Concepts, Silberschatz, Korth, and Sudarshan, 5th edition, Mc-Graw Hill, 2006. Text books are available from the Monash University Book Shops. Availability from other suppliers cannot be assured. The Bookshop orders texts in specifically for this unit. You are advised to purchase your text book early.

Recommended text(s) and readings

Object-Oriented Oracle, Rahayu, Taniar, and Pardede, CyberTech, 2006Rob & Coronel, Database Systems Fundamentals of Database Systems, Elmasri and Navathe, 5th edition, Addison Wesley, 2007, Database System Concepts, Silberschatz, Korth, and Sudarshan, 5th edition, Mc-Graw Hill, 2006.

Required software and/or hardware

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.

Equipment and consumables required or provided

Students studying off-campus are required to have the minimum system configuration specified by the Faculty as a condition of accepting admission, and regular Internet access. On-campus students, and those studying at supported study locations may use the facilities available in the computing labs. Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook. You will need to allocate up to **n** hours per week for use of a computer, including time for newsgroups/discussion groups.

Study resources

Study resources we will provide for your study are:

Assessment

Overview

Assignment: 30%, Class Test: 10%, Exam (3 hours): 60%

Faculty 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 44% then a mark of no greater than 44-N will be recorded for the unit.

Assignment tasks

Assignment coversheets

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.

Assignment submission and return procedures, and assessment criteria will be specified with each assignment.

- **Assignment task 1**

  Title:
  > Assignment
  Description:
  > Object-relational database design and implementation
  Weighting:
  > 30%
  Due date:
  > Week 11, Thursday 8-Oct-2009, 3pm

Examination

- **Weighting:** 60%
  Length: 3 hours
  Type (open/closed book): Closed book

See Appendix for End of semester special consideration / deferred exams process.

Due dates and extensions

Please make every effort to submit work by the due dates. It is your responsibility to structure your study program around assignment deadlines, family, work and other commitments. Factors such as normal work pressures, vacations, etc. are not regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Students requesting an extension for any assessment during semester (eg. Assignments, tests or presentations) are required to submit a Special Consideration application form (in-semester exam/assessment task), along with original copies of supporting documentation, directly to their lecturer within two working days before the assessment submission deadline. Lecturers will provide specific outcomes directly to students via email within 2 working days. The lecturer reserves the right to refuse late applications.

A copy of the email or other written communication of an extension must be attached to the assignment submission.

Refer to the Faculty Special consideration webpage or further details and to access application forms:
http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html

Late assignment

Assignments received after the due date will be subject to a penalty of **[describe penalty for late submission, describe the deadline for late assignment acceptance or any conditions that are placed on late assignments, e g, "Assignments received later than one week after the due date will not normally be accepted."]**

Return dates

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

Appendix

Please visit the following URL: http://www.infotech.monash.edu.au/units/appendix.html for further information about:

- Continuous improvement
- Unit evaluations
- Communication, participation and feedback
- Library access
- Monash University Studies Online (MUSO)
- Plagiarism, cheating and collusion
- Register of counselling about plagiarism
- Non-discriminatory language
- Students with disability
- End of semester special consideration / deferred exams