



**MONASH** University  
Information Technology

**FIT9019**  
**Database technology**

**Unit Guide**

**Semester 2, 2010**

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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# Table of Contents

<u><a href="#">FIT9019 Database technology - Semester 2, 2010</a></u> .....	1
<u>Chief Examiner:</u> .....	1
<u>Lecturer(s) / Leader(s):</u> .....	1
<u>Caulfield</u> .....	1
<u>Introduction</u> .....	2
<u>Unit synopsis</u> .....	2
<u>Learning outcomes</u> .....	2
<u>Contact hours</u> .....	2
<u>Workload</u> .....	2
<u>Unit relationships</u> .....	3
<u>Prohibitions</u> .....	3
<u>Teaching and learning method</u> .....	4
<u>Teaching approach</u> .....	4
<u>Timetable information</u> .....	4
<u>Tutorial allocation</u> .....	4
<u>Unit Schedule</u> .....	4
<u>Unit Resources</u> .....	5
<u>Prescribed text(s) and readings</u> .....	5
<u>Recommended text(s) and readings</u> .....	5
<u>Required software and/or hardware</u> .....	5
<u>Equipment and consumables required or provided</u> .....	5
<u>Study resources</u> .....	5
<u>Assessment</u> .....	6
<u>Overview</u> .....	6
<u>Faculty assessment policy</u> .....	6
<u>Assignment tasks</u> .....	6
<u>Examination</u> .....	7
<u>Due dates and extensions</u> .....	7
<u>Late assignment</u> .....	8
<u>Return dates</u> .....	8
<u>Feedback</u> .....	8
<u>Appendix</u> .....	9

# **FIT9019 Database technology - Semester 2, 2010**

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## **Lecturer(s) / Leader(s):**

### **Caulfield**

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## Introduction

Welcome to FIT9019 Database Technology.

FIT9019 is a unit designed to introduce the student to database technology. It assumes no previous database knowledge.

## Unit synopsis

Database concepts and models, relational database management systems, semantic data modelling, entities and entity relationship modelling, normalisation, user requirements specification, database specification. Storage media and data organisation, logical data structures: linear and non-linear. Physical database implementation, integrity, backup, recovery, security. Structured Query Language, database administration. Current topics; distributed database, data warehousing, Object-oriented database.

## Learning outcomes

At the completion of this unit students will:

- understand the motivations behind the development of database management systems;
- appreciate the underlying theoretical basis of the relational database model and how this model may be implemented in practice;
- understand the differences between non-relational database models and the relational database mode;
- be able to apply logical and physical database design principles to a database implementation;
- be conversant with Structured Query Language (SQL);
- understand the processes involved in database administration, transaction management, concurrency control, restart and recovery.

## Contact hours

2 hrs lectures/wk, 2 hrs laboratories/wk

## Workload

Workload commitments are:

- two-hour lecture and
- two-hour tutorial (or laboratory) (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.

## **Unit relationships**

### **Prohibitions**

CSE9002

## Teaching and learning method

### Teaching approach

- Lectures
- Tutorials, including discussion and computer-based exercises (SQL)

### 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.its.monash.edu.au/>

### Unit Schedule

Week	Date*	Topic	Key dates
1	19/07/10	Introduction	
2	26/07/10	Relational Data Model	
3	02/08/10	Database Design 1	
4	09/08/10	Database Design 2	
5	16/08/10	SQL 1	
6	23/08/10	SQL 2	
7	30/08/10	SQL 3	
8	06/09/10	Physical Database Design 1	Assignment 1 Due (3PM 07-Sep-10)
9	13/09/10	Physical Database Design 2	
10	20/09/10	Database Security, Concurrency & Recovery	
Mid semester break			
11	04/10/10	PL/SQL	
12	11/10/10	Advanced Database Topics	Assignment 2 Due (3PM 12-Oct-10)
13	18/10/10	Review	

\*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.

## **Unit Resources**

### **Prescribed text(s) and readings**

Please see Recommended texts

### **Recommended text(s) and readings**

Connolly, T. and Begg, C., Database Systems - A Practical Approach to Design, Implementation and Management (4th ed.), Addison-Wesley, 2005, ISBN -13 978-0-321-21025-8.

Elmasri, R. & Navathe, S.B. Fundamentals of Database Systems (5th ed.), Addison-Wesley, 2007, ISBN-13: 978-0-321-36957-2.

### **Required software and/or hardware**

To access weekly lecture/class materials, you will need an Adobe Acrobat reader, and Microsoft Office software (PowerPoint, Word, and Excel).

### **Equipment and consumables required or provided**

You will need access to:

- a personal computer with access to the internet via dial-up connection or preferably by broadband
- a printer for assignments

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.

### **Study resources**

Study resources we will provide for your study are:

Unit Web Page: Login to Moodle

Lecture notes/PowerPoint slides, tutorial sheets, assignment specifications and other relevant materials will be posted on the web site each week.

The following database management system software will be used in FIT9019:

- Microsoft Access
- Oracle 10g

The above software will be provided in the Monash computing laboratories. It is not necessary for the student to purchase any software.

## Assessment

### Overview

Examination (2 hours): 65%; In-semester assessment: 35%

### 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 50% then a mark of no greater than 49-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 submission and preparation requirements will be detailed in each assignment specification. 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>.

#### • Assignment task 1

**Title:**

Assignment 1 (Data Modelling)

**Description:**

Students will be provided with a case study and will have to perform the Entity Relationship modelling and the normalisation process.

**Weighting:**

20%

**Criteria for assessment:**

1. Quality of the benefits of database approach to the management of data.
2. Correctness and quality of database design. This should support the business requirements outlined in the case study.
3. Correctness of the normalisation process.
4. Correctness of the Database Design Language (DBDL) for the normalised relations.

**Due date:**

3PM on 07-September-2010



- **Assignment task 2**

**Title:**

Assignment 2 (SQL)

**Description:**

Students will be provided with a set of relations and will have to create the database using Oracle software and develop a set of SQL queries.

**Weighting:**

15%

**Criteria for assessment:**

1. Correctness of any changes made to the relations provided to accommodate the business requirements.
2. Correctness of the data used to populate the tables.
3. Correctness and quality of SQL commands to implement the queries identified. These will be assessed as to whether the output of the commands answers the business queries asked.
4. Use of any Oracle features with justification in the implementation.

**Due date:**

3PM on 12-October-2010

## Examination

- 

**Weighting:**

65%

**Length:**

2 hours

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

Closed book

**Electronic devices allowed in the exam:**

None

**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**

If you believe that your assignment will be delayed because of circumstances beyond your control such as illness, you should apply for an extension prior to the due date. All applications for extensions must be made in writing to your lecturer. Medical certificates or other supporting documentation will be required.

Late assignments submitted without an approved extension may be accepted (up to one week late) at the discretion of the lecturer, but will be penalised at the rate of 10% of total assignment marks per day (including weekends). 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.

## **Feedback**

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

Informal feedback on progress in labs/tutes

Graded assignments with comments

## 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