



MONASH University

FIT9003
Database systems design

Unit Guide

Semester 2, 2009

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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FIT9003 Database systems design - Semester 2, 2009

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Additional communication information:

In addition to the staff contact details included here, teaching staff for the unit will regularly monitor and provide feedback on the various discussion forums hosted on the unit's Moodle site. Students are encouraged to post questions, comments and answers to these forums regularly.

In particular, off-campus students are encouraged to post their tutorial work to the relevant Moodle discussion forum for feedback from both staff and students.

Introduction

Welcome to FIT9003 Database Systems Design for Semester 2, 2009. This 6 point unit is core for all graduate and postgraduate degree programs in the Faculty of IT. The unit has been designed to give you the knowledge to design database systems to solve organisational information requirements. It focuses on design techniques that will allow you to elicit requirements from clients, and design and document solutions.

Unit synopsis

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 (hierarchical, network and relational data models), and the use of SQL and other facilities provided by database management systems.

Learning outcomes

To develop student knowledge of the techniques for functional analysis of a business problem, requirements specification of a database application system, and planning, designing, implementing and manipulating a database within a methodological framework.

Contact hours

4 x contact hrs/week

Workload

For on campus students, 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.

Off-campus students will not be expected to attend lectures or tutorial sessions, but lectures will be audio-recorded, and made available via both a unit Podcast as well as the Library's Monash University Lectures Online (MULO) service. All tutorial exercises and solutions will be posted to the unit's Moodle site (see below for access details). Off-campus students should plan to spend equivalent time working on these resources, and should seek advice from the Gippsland lecturer when needed. Students are encouraged to post their tutorial solutions to the Moodle discussion forums for feedback.

Unit relationships

Prohibitions

BUS3112, BUS4112, BUS5071, BUS9003, CSE4430, CSE9002, GCO9804, IMS9001, IMS9003

Relationships

FIT9003 is a core unit for Faculty of Information Technology postgraduate courses. This unit is also co-taught as FIT3218 through the Gippsland campus.

You may not study this unit as well as the following units in your degree:

- CSE9002
- BUS3112
- BUS4112
- IMS9001
- IMS9003
- GCO9804
- BUS9003
- CSE4430
- BUS5071
- FIT9012

Teaching and learning method

Teaching and learning in the unit involves:

- Lectures
- Tutorials
- Discussion forums
- Weekly reading
- Personal study between classes on a weekly basis.

All students are able to access the MULO recordings of the weekly lectures. Off-campus student tutorials will be supported with discussion groups, chat and video podcasts.

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/>

Off-Campus Learning or flexible delivery

Resources for the unit will be made available in the unit's Moodle site. You will be able to listen to the lecture recordings for the Caulfield class and discuss unit material on the Moodle discussion forums. The unit's video podcast will also be available for subscription through software such as iTunes. Episodes covering both lecture and tutorial materials will be released weekly through the semester and will include both audio and video of the lecture slides. MULO recordings will also be available, but these will be limited to audio only.

Weekly tutorial discussions will be supported in the Moodle site, and supplementary sessions may be held using chat and video conferencing, according to student preferences.

It is important that off-campus students stay up-to-date with the unit schedule throughout the semester, and seek feedback and advice on a regular basis.

Unit Schedule

Week	Topic	References/Readings	Key dates
1	Introduction to Systems and Databases	Chapter One of the textbook	
2	ER Modelling Basics	Chapter Three of the textbook	
3	Conceptual, logical and physical models	Chapter Six of the textbook	
4	Advanced modelling techniques and the data dictionary	Chapters Four, Ten and Fifteen of the textbook	
5	The Consulting Process	Chapters Eight and Nine of the textbook	
6	Normalisation 1	Chapter Two of the	

		textbook	
7	Normalisation 2	Chapter Thirteen of the textbook	Assignment One due
8	Introduction to SQL	Din, A. (1994) "Structured Query Language (SQL): A Practical Introduction" (free online text)	
9	Advanced SQL and middleware	Din, A. (1994)	
10	Implementation	Chapter Twelve of the textbook	
Mid semester break			
11	Alternative Modelling Techniques	Chapters Seven and Sixteen of the textbook	
12	Design	Simsion, G. (2007) "Data Modelling: News from the Ivory Tower", The Data Administrators Newsletter, January, 2007.	Assignment Two due
13	Conclusion and Revision	Revision of past readings	

Unit Resources

Prescribed text(s) and readings

Simsion, G.C., & Witt, G.C. (2005) *Data Modelling Essentials*, 3rd Edition, Morgan Kaufmann Publishers. The text book is available from the Monash University Book Shops. The book is also available on Amazon.com. 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.

For material on SQL, you will find the following free, online textbook useful:

Din, A. (1994) "Structured Query Language (SQL): A Practical Introduction", NCC Blackwell.

A copy of this text will be provided electronically via Moodle. You may also wish to purchase a basic SQL book for your own reference. Most academic and technical bookshops have an excellent range.

Recommended text(s) and readings

The following texts will be useful, but not mandatory, for studying the unit. If you have no IT background and/or are an off-campus student, it is strongly recommended that you either purchase or borrow the third of these texts:

Rob, P. & Coronel, C., (2007). *Database Systems Design, Implementation and Management*, 7th Ed., Thomson Course Technology

Hoffer, J.A., George, J.F. & Valacich, J.S. (2005). *Modern systems analysis and design. (4th ed.)*. Upper Saddle River, NJ: Pearson Education International/Prentice-Hall.

Hoffer, J.A Prescott, M.B. and Mcfadden, F.R; *Modern Database Management 6th ed.* Prentice-Hall/Pearson Education, 2005

Required software and/or hardware

A drawing package such as Microsoft Visio is strongly recommended; a copy of which can be obtained from the Faculty's IT service desk. You will need access to a Windows XP or later based machine, and will also find it useful to install a copy of Microsoft SQL Server 2005 Express Edition (also available from the Faculty's IT service desk). You will also need a web browser and Microsoft Word.

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.

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, as well as the software specified above, and regular Internet access. On-campus students, and those studying at supported study locations may use the facilities available in the computing labs, as well as installing the software detailed above on a home machine to allow for study and assignment work off-campus. 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 4 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:

The FIT9003 web site on Moodle, where lecture slides, weekly tutorial exercises, assignment specifications, sample solutions, supplementary materials and discussion forums can be found. Lectures will also be audio recorded and can be accessed via <http://www.mulo.monash.edu.au/> as downloads or subscribed to as a podcast. A separate FIT9003 podcast will also be published containing video of lecture slides, as well as tutorial exercise walkthroughs.

Assessment

Overview

Practical Assignments: 30%; Examination: 70%. Students must pass in both forms of assessment in order to pass the subject.

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.

To pass this unit, a student must obtain :

- 40% or more in the unit's examination and
- 40% or more in the unit's 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 assessment 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 1 - Database Design

Description:

You will design a database system for an organisation. You will construct an entity-relationship model and document it with a data dictionary and other supporting material.

Weighting:

20%

Due date:

Week 8 of Semester, during your tutorial.

Remarks:

The due date may be subject to change - see the assignment specification for the final submission date.

• Assignment task 2

Title:

Assignment 2 - SQL

Description:

You will write a number of SQL queries and commands.

Weighting:

10%

Due date:

Week 12 of Semester, during your tutorial

Remarks:

The due date may be subject to change - see the assignment specification for the final submission date.

Examination

- **Weighting:** 70%

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 and without an extension will be subject to a penalty of 10 marks per day (ie, an assignment graded 65% would receive a mark of 55% if submitted one day late). Weekends count as a single day. Assignments more than one week late will not be accepted, and a result of 0 will be recorded.

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