MONASH University

FIT9003
Database systems design

Unit guide

Semester 1, 2009

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FIT9003 Database systems design - Semester 1, 2009

Unit leader :

Rob Meredith

Lecturer(s) :

Caulfield

- Rob Meredith

Introduction

Welcome to FIT9003 Database Systems Design for semester 1, 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, 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.

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 all tutorial exercises and solutions will be posted to the unit's MUSO 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.

Unit relationships

Prerequisites

There are no prerequisites for this unit.

Relationships

FIT9003 is a core unit in the Master of Business Systems and Master of Information Management and Systems degrees.

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

Continuous improvement

Monash is committed to 'Excellence in education' (Monash Directions 2025 - http://www.monash.edu.au/about/monash-directions/directions.html) and strives for the highest possible quality in teaching and learning.

To monitor how successful we are in providing quality teaching and learning Monash regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through Unit Evaluation Surveys. The University's Unit Evaluation policy (http://www.policy.monash.edu/policy-bank/academic/education/quality/unit-evaluation-policy.html) requires that every unit offered is evaluated each year. Students are strongly encouraged to complete the surveys as they are an important avenue for students to "have their say". The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

Faculties have the option of administering the Unit Evaluation survey online through the my.monash portal or in class. Lecturers will inform students of the method being used for this unit towards the end of the semester.

Student Evaluations

If you wish to view how previous students rated this unit, please go to http://www.monash.edu.au/unit-evaluation-reports/

Improvements to this unit

The first assignment has been restructured based on feedback, and more exercises will be provided for practicing the practical aspects of the unit. Podcasts covering lectures and tutorial work will also be made available.

Unit staff - contact details

Unit leader

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Lecturer(s) :

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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.

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. OCL tutorials will be supported with discussion groups, chat and video podcasts.

Tutorial allocation

On-campus students should register for tutorials/laboratories using Allocate+.

Off-campus students should make use of the weekly tutorial exercises posted to Moodle. Tutorial solutions, where appropriate, will be posted to Moodle the week after the relevant tutorial.

Off-campus distributed learning or flexible delivery

Resources for the unit will be made available in the MUSO site (using Moodle). You will be able to listen to the lecture recordings for the Clayton class and d iscuss your questions and thoughts in a specific discussion forum.

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.

Communication, participation and feedback

Monash aims to provide a learning environment in which students receive a range of ongoing feedback throughout their studies. You will receive feedback on your work and progress in this unit. This may take the form of group feedback, individual feedback, peer feedback, self-comparison, verbal and written feedback, discussions (on line and in class) as well as more formal feedback related to assignment marks and grades. You are encouraged to draw on a variety of feedback to enhance your learning.

It is essential that you take action immediately if you realise that you have a problem that is affecting your study. Semesters are short, so we can help you best if you let us know as soon as problems arise. Regardless of whether the problem is related directly to your progress in the unit, if it is likely to interfere with your progress you should discuss it with your lecturer or a Community Service counsellor as soon as possible.

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	Normalisation 1	Chapter Two of the textbook	
6	Normalisation 2	Chapter Thirteen of the textbook	
Mid semester break			
7	Implementing Database Designs	Chapter Twelve 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	The Consulting Process	Chapters Eight and Nine of the textbook	
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:

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.

Library access

The Monash University Library site contains details about borrowing rights and catalogue searching. To learn more about the library and the various resources available, please go to http://www.lib.monash.edu.au.

The Educational Library and Media Resources (LMR) is also a very resourceful place to visit at http://www.education.monash.edu.au/library/

Monash University Studies Online (MUSO)

All unit and lecture materials are available through MUSO (Monash University Studies Online). Blackboard is the primary application used to deliver your unit resources. Some units will be piloted in Moodle. If your unit is piloted in Moodle, you will see a link from your Blackboard unit to Moodle (http://moodle.monash.edu.au) and can bookmark this link to access directly. In Moodle, from the Faculty of Information Technology category, click on the link for your unit.

You can access MUSO and Blackboard via the portal: http://my.monash.edu.au

Click on the Study and enrolment tab, then Blackboard under the MUSO learning systems.

In order for your Blackboard unit(s) to function correctly, your computer needs to be correctly configured.

For example:

- Blackboard supported browser
- Supported Java runtime environment

For more information, please visit: http://www.monash.edu.au/muso/support/students/downloadables-student.html

You can contact the MUSO Support by phone : (+61 3) 9903 1268

For further contact information including operational hours, please visit:
http://www.monash.edu.au/muso/support/students/contact.html

Further information can be obtained from the MUSO support site:
http://www.monash.edu.au/muso/support/index.html

Assessment

Unit assessment policy

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 Task**

  Title : Assignment 1 - Database Design

  Description :

  You will design a database system for an organisation. You will construct and entity-relationship model and document it with a data dictionary and other supporting material.
  Weighting : 20%

  Criteria for assessment :

  Assignment 1 will be marked according to the following criteria:

  - Quality of design solution
  - Correctness of the modelling technique employed (entity-relationship modelling and normalisation)
  - Correctness and quality of the data dictionary and validation assertions included
  - Presentation quality.

  Due date : Week 8 of Semester, during your tutorial.

  Remarks (optional - leave blank for none) :

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

- **Assignment Task**

  Title : Assignment 2 - SQL

  Description :

  You will write a number of SQL queries and commands.
  Weighting : 10%

  Criteria for assessment :

You will be assessed on how well you are able to complete the series of database tasks using SQL commands.
Due date : Week 12 of Semester, during your tutorial

Remarks (optional - leave blank for none) :

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

Examinations

- **Examination 1**

Weighting : 70%

Length : 3 hours

Type (open/closed book) : closed book

Assignment submission

Submission details will be provided with each assignment specification. Email submissions ***will not*** be accepted.

On-campus students should submit their assignments during class to their tutor, with an appropriately signed coversheet.

OCL students will submit electronically through the Moodle learning management system.

Assignment coversheets

All assignments must be accompanied by a signed coversheet, available from http://infotech.monash.edu.au/resources/student/assignments/

University and Faculty policy on assessment

Due dates and extensions

The due dates for the submission of assignments are given in the previous section. 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 seldom regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Requests for extensions must be made to the unit lecturer at your campus at least two days before the due date. You will be asked to forward original medical certificates in cases of illness, and may be asked to provide other forms of documentation where necessary. A copy of the email or other written communication of an extension must be attached to the assignment submission.

Late assignment

Assignments received after the due date 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.

Assessment for the unit as a whole is in accordance with the provisions of the Monash University Education Policy at http://www.policy.monash.edu/policy-bank/academic/education/assessment/

We will aim to have assignment results made available to you within two weeks after assignment receipt.

Plagiarism, cheating and collusion

Plagiarism and cheating are regarded as very serious offences. In cases where cheating has been confirmed, students have been severely penalised, from losing all marks for an assignment, to facing disciplinary action at the Faculty level. While we would wish that all our students adhere to sound ethical conduct and honesty, I will ask you to acquaint yourself with Student Rights and Responsibilities (http://www.infotech.monash.edu.au/about/committees-groups/facboard/policies/studrights.html) and the Faculty regulations that apply to students detected cheating as these will be applied in all detected cases.

In this University, cheating means seeking to obtain an unfair advantage in any examination or any other written or practical work to be submitted or completed by a student for assessment. It includes the use, or attempted use, of any means to gain an unfair advantage for any assessable work in the unit, where the means is contrary to the instructions for such work.

When you submit an individual assessment item, such as a program, a report, an essay, assignment or other piece of work, under your name you are understood to be stating that this is your own work. If a submission is identical with, or similar to, someone else's work, an assumption of cheating may arise. If you are planning on working with another student, it is acceptable to undertake research together, and discuss problems, but it is not acceptable to jointly develop or share solutions unless this is specified by your lecturer.

Intentionally providing students with your solutions to assignments is classified as "assisting to cheat" and students who do this may be subject to disciplinary action. You should take reasonable care that your solution is not accidentally or deliberately obtained by other students. For example, do not leave copies of your work in progress on the hard drives of shared computers, and do not show your work to other students. If you believe this may have happened, please be sure to contact your lecturer as soon as possible.

Cheating also includes taking into an examination any material contrary to the regulations, including any bilingual dictionary, whether or not with the intention of using it to obtain an advantage.

Plagiarism involves the false representation of another person's ideas, or findings, as your own by either copying material or paraphrasing without citing sources. It is both professional and ethical to reference clearly the ideas and information that you have used from another writer. If the source is not identified, then you have plagiarised work of the other author. Plagiarism is a form of dishonesty that is insulting to the reader and grossly unfair to your student colleagues.

Register of counselling about plagiarism

The university requires faculties to keep a simple and confidential register to record counselling to students about plagiarism (e.g. warnings). The register is accessible to Associate Deans Teaching (or nominees) and, where requested, students concerned have access to their own details in the register. The register is to serve as a record of counselling about the nature of plagiarism, not as a record of allegations; and no provision of appeals in relation to the register is necessary or applicable.

Non-discriminatory language

The Faculty of Information Technology is committed to the use of non-discriminatory language in all forms of communication. Discriminatory language is that which refers in abusive terms to gender, race, age, sexual orientation, citizenship or nationality, ethnic or language background, physical or mental ability, or political or religious views, or which stereotypes groups in an adverse manner. This is not meant to preclude or inhibit legitimate academic debate on any issue; however, the language used in such debate should be non-discriminatory and sensitive to these matters. It is important to avoid the use of discriminatory language in your communications and written work. The most common form of discriminatory language in academic work tends to be in the area of gender inclusiveness. You are, therefore, requested to check for this and to ensure your work and communications are non-discriminatory in all respects.

Students with disabilities

Students with disabilities that may disadvantage them in assessment should seek advice from one of the following before completing assessment tasks and examinations:

- Faculty of Information Technology Student Service staff, and / or
- your Unit Coordinator, or
- Disabilities Liaison Unit

Deferred assessment and special consideration

Deferred assessment (not to be confused with an extension for submission of an assignment) may be granted in cases of extenuating personal circumstances such as serious personal illness or bereavement. Information and forms for Special Consideration and deferred assessment applications are available at http://www.monash.edu.au/exams/special-consideration.html. Contact the Faculty's Student Services staff at your campus for further information and advice.