MONASH University

FIT9030
Systems analysis and design

Unit guide

Semester 1, 2009

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FIT9030 Systems analysis and design - Semester 1, 2009

Unit leader :

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Introduction

Welcome to FIT9030 Systems Analysis and Design for semester 1, 2009. This 6 point unit is core to the Master of Applied Information Technology (MAIT), Graduate Diploma in Information Technology and Graduate Certificate in Information Technology postgraduate degree programs in the Faculty of IT. The unit has been designed to introduce you to the fundamentals of information systems and their development. It provides you with an understanding of information systems and the contexts within which systems analysis and design are conducted. It explores many aspects of systems analysis and design with emphasis on business requirements gathering, structured approaches to systems development and some of the techniques used to specify information system requirements.It explores the relationship between theoretical knowledge and its practical application using cases and real examples.

Unit synopsis

The unit introduces students to the key principles which underlie the analysis and design of computer-based information systems to support business and other organisational undertakings. It describes the development life cycle of an information system and provides students with an introductory knowledge of the process of information systems development and the techniques used.

Learning outcomes

At the completion of this unit students will have knowledge and understanding of:

- the role of information systems in organisations
- the roles of systems analysts and designers in systems development
- the processes of systems analysis and design in structured and object-oriented systems development methodologies and life-cycles
- planning and problem definition in simple information technology problems
- some of the techniques used to analyse and design information systems
- the framework used to structure information systems development projects
- when the use of a particular technique is appropriate

- the criteria that can be used to evaluate the quality of system models
- the purpose of different types of model in the Unified Modelling Language (UML)
- the attitudes to appreciate the capabilities and limitations of an information system
- the practical skills to apply some of the analysis and design techniques in a systems development situation
- the practical skills used to communicate requirements for business functionality of an information system in terms of data required, data storage and processing

and students will have developed attitudes that enable them to:

- appreciate that a range of valid solutions exist for any given problem

as well as the skills to:

- model and design logical and physical systems using standard object-oriented techniques
- interpret and evaluate systems analysis and systems design models created using both structured and object-oriented techniques
- create analysis and design models using the main elements of the UML
- develop and practice the skills and competencies necessary to undertake requirements analysis for a business application
- apply problem solving techniques at different levels of abstraction and understand the effect this may have on a system specification

and to:

- explain the interdependence and relationships between all stake-holders in the systems development process

Workload

For on campus students, workload commitments are:

- two-hour lecture and
- two-hour tutorial (or studio) (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 generally do not attend lecture and tutorial sessions, however, you should plan to spend equivalent time working through the relevant resources and participating in discussion groups each week.

You will need to allocate around 12 hours per week during the semester for this unit

Unit relationships

Prerequisites

There are no prerequisites for this unit.

Relationships

FIT9030 is a core unit in the Master of Applied Information Technology (MAIT), Graduate Diploma in Information Technology, and Graduate Certificate in Information Technology degrees offered by the Faculty of IT..

It is a prerequisite for FIT4037 Case Study, but as a core unit it must be completed successfully in order to obtain any of the above qualifications.

There are no prerequisites for this unit..

You may not study this unit and

- IMS9001
- FIT2001

in your degree.

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.adm.monash.edu.au/cheq/evaluations/unit-evaluations/

Unit staff - contact details

Unit leader

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Teaching and learning method

The teaching and learning in this unit is structured in the traditional manner around lectures and laboratory-based tutorial workshops. Most of the lecture and tutorial material is strongly supported by the prescribed text for the unit. It is important that you obtain a copy of the text. Each week there is reading set from the text and you will find that the unit isn't too difficult if you study consistently throughout the semester, and keep up woth reading and exercises.

Your learning is also supported by some additional resources on the Moodle-based web site. You will find a forum - which will be actively monitored by staff - that you can use to ask questions or follow up on any issues you may have.

Tutorial allocation

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

Please note that workshops/studios begin in week 1 of the semester.

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	Study guide	References/Readings	Key dates
1	Introduction to systems analysis and design	Study guide 1: Introduction to systems analysis and design	Chapter 1 from unit text (SJB) - Satzinger, J. W., Jackson, R.B., and S.D. Burd (2008) Systems Analysis and Design in a Changing World, 5th Edition, Thomson Course Technology.	
2	The context of systems analysis and design	Study guide 2: The context of systems analysis and design	Chapter 2 and parts of chapter 3 SJB	
3	Requirements gathering		Chapter 4 SJB	

		Study guide 3: Requirements gathering		
4	Beginning analysis	Study guide 4: Beginning analysis	Chapter 5 SJB	
5	The traditional or structured approach to analysis	Study guide 5: The traditional or structured approach to analysis	Chapter 6 SJB	
6	Use case modelling	Study guide 6: Use case modelling	Chapter 7 SJB	Assignment 1a due
Mid semester break				
7	Finishing analysis	Study guide 7: Finishing analysis	Chapter 8 SJB	
8	The nature of good design	Study guide 8: The nature of good design	Chapter 9 SJB	
9	Structured design	Study guide 9: Structured design	Chapter 10 SJB	Assignment 1b due
10	Design - use case realisation	Study guide 10: Design - use case realisation	Chapter 12 SJB	
11	The user interface	Study guide 11: The user interface	Chapter 14 SJB	
12	System interfaces	Study guide 12: System interfaces	Chapter 15 SJB	Assignment 2 due
13	Unit review		Past exam papers from eqivalent units available on unit web site	

Unit Resources

Prescribed text(s) and readings

There is one prescribed text. Note that students are expected to purchase this text.

- Satzinger, J. W., Jackson, R. B., Burd, S. D. and Johnson, R., (2008), *Systems Analysis and Design in a Changing World*, 5th Edition, Thomson Course Technology.

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

Booch, G., Rumbaugh, J. and I. Jacobson (1999) The Unified Modeling Language User Guide Addison Wesley Professional.

Dennis, A., Wixom, B.H. and D. Tegarden (2008) Systems Analysis and Design with UML Version 2.0: An Object-Oriented Approach, 3rd Edition, Wiley.

Hoffer, J.A., George, J.F. and J.S. Valacich (2001) Modern Systems Analysis and Design 3rd Edition, Prentice Hall.

George, J.F., Batra, D., Valacich J.S. and J.A. Hoffer, (2004) Object-Oriented System Analysis and Design Prentice-Hall.

Lee, R. and W. Tepfenhart (2002) Practical Object-Oriented Development with UML and Java, Prentice Hall.

Maciaszek, L. (2004) Requirements Analysis and System Design, 2nd Edition, Addison-Wesley.

Page-Jones, M. (1988) The Practical Guide to Structured Systems Design 2nd Edition, Prentice-Hall.

Page-Jones, M. (2000) Fundamentals of Object-Oriented Design in UML Addison-Wesley.

Required software and/or hardware

Students will require access to an "industrial strength" CASE (computer aided software engineering) tool. In 2009, the tool choosen is Visual Paradigm for UML. This product can be downloaded from the Visual Paradigm web site but to run requires a license key. This is available for download from the FIT9030 Moodle-based unit web site or from your tutor.

Students will also require access to traditional personal productivity tools (word processing , graphics and presentation).

Software may be:

* downloaded from http://www.visual-paradigm.com/
* purchased at academic price at good software retailers

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 6 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:

* Weekly detailed lecture notes outlining the learning objectives, discussion of the content, required readings and exercises;
* Weekly tutorial or laboratory tasks and exercises with sample solutions provided one to two weeks later;
* Assignment specifications and sample solutions;
* A sample examination and suggested solution
* Access to past examination papers;
* Discussion groups;
* This Unit Guide outlining the administrative information for the unit;
* The unit web site on MUSO, where resources outlined above will be made available.

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

The unit is assessed with two assignments (the first one is in two parts) and a three hour closed book examination. If you maintain a reflective blog a further bonus mark can be added to your assignment mark.

To pass the unit you must:

- attempt the assignments and examination
- achieve no less than 40% of the possible marks individually in the assignment and exam
- achieve no less than 50% of possible marks (of assignment and examination taken together) for the unit.

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 44-N will be recorded for the unit.

Assignment tasks

- ## Assignment Task

  Title : Assignment 1a: Draft requirements specification with event table

  Description :

  Assignment work in the unit is fully described, along with the assessment criteria, on the assignment page of the Moodle-based unit web site.

  In this first assignment task you will create a draft of your requirements specification that will include a fully developed event table.

  Weighting : 5%

  Criteria for assessment :

  Due date : Thursday, 9 April 2009, Midnight.

- ## Assignment Task

  Title : Assignment 1b: Requirements specification

  Description :

  Assignment work in the unit is fully described, along with the assessment criteria, on the assignment page of the Moodle-based unit web site.

  Inthis second assignment task you will create a finalise of your requirementsspecification, this will include a contect diagram, an event table, a use case diagram and associated use case narratives and an domain class model.

  Weighting : 20%

  Criteria for assessment :

  Due date : Sunday, 10 May 2009, Midnight.

- ## Assignment Task

  Title : Assignment 2: Design specification

  Description :

  Assignment work in the unit is fully described, along with the assessment criteria, on the assignment page of the Moodle-based unit web site.

  In this final assignment task you will create a design-specification that will include a partial design class model, a sequence diagram, a partial interface design and a database design model.

  Weighting : 15%

  Criteria for assessment :

  Due date : Sunday, 31 May 2008, Midnight.

- **Assignment Task**

  Title : Reflective blog posts

  Description :

  Weighting : Bonus of 3% added to overall assignment mark

  Criteria for assessment :

  Due date : Your last blog entry can be made anytime before the exam.

  Remarks (optional - leave blank for none) :

  Each student is invited to keep a reflective journal on the blog site blog.infotech.monash.edu.au (a blog can aslso be maintained onthe Moodle-based unit web site or using a commercial blogging system like www.blogger.com). This will be set up - with the help of teaching staff if required - during the week 1 tutorial. This blog will provide the opportunity to reflect on the learning that takes place throughout the unit. Each week you will be able to make a new posting to your blog. The blog entries should include a reflection on what has happened in terms of your progress on assignment and tutorial work, your management of the assignment project and its tasks, what lessons have been learned to date and what you (and the staff) could do differently. A page listing all the reflective journals of FIT2001 students will be maintained on the Moodle-based unit web site.

  To obtain the 3% bonus mark for this task students must complete a minimum of 10 weekly blog entries during the semester. Each blog post will be read and assessed by the chief examiner. To get the 3% bonus 6 of these posts should be assessed as "satisfactory".

  The 3% bonus will be added to the assignment component of the mark available for the unit. Note that that component cannot exceed 40%. So, for example, a student who obtained 36/40 for their assignment work who earns the bonus will get 39%. While a student who got 39/40 would get 40/40 - the maximum available - if they earned the bonus.

  For more details, please refer to the Moodle-based unit web site.

Examinations

- **Examination 1**

  Weighting : 60%

  Length : 3 hours

  Type (open/closed book) : Closed book

Assignment submission

All assignments will be submitted electronically via the Moodle-based web site.

Assignment coversheets

Electronic coversheets are to be submitted with your assignment. These can be obtained from the Assignments page of the unit web site (on Moodle).

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.

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.

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 the University Plagiarism policy and procedure (http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html) which applies to students detected plagiarising.

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.