FIT2027
Systems design and implementation

Unit guide

Semester 2, 2008

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Lecturer(s) :

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Tutors(s) :

Caulfield

- Jacob Zhivov
- David Grant

Introduction

Welcome to FIT2027 Systems Design and Implementation for semester 2, 2007. This 6 point unit is core to the BITS degree offered at Caulfield and Malaysia.

Unit synopsis

This unit focuses on the nature of systems design and implementation as phases within the systems development process. By the end of the unit, students know the principles of how to design and implement a system, have the knowledge and skills required to conduct the main tasks typically required in these phases, and have experience in selecting and using the most suitable design and implementation techniques to develop a system from a requirements specification.

Topics include:

Design:

- Transition from Analysis to Design
- Preparation and Selection of design alternatives
- Definition of System architecture requirements
- Design Strategies
- Structured, Object-oriented, Design patterns
- Object-oriented design modelling
- Interface Design
- Systems security and access controls

Implementation:

- Implementation planning, testing overview, data conversion, training, documentation-user and help systems, systems installation, transition to maintenance

Learning outcomes

Knowledge and Understanding

At the completion of this unit students will demonstrate an understanding of:

C1. The purpose and objectives of the systems design and implementation phases of the systems development lifecycle, and the activities which they involve

C2. The purpose, strengths and weaknesses, and the use of the main techniques which are used in systems design and implementation

C3. The key issues involved in systems design and implementation

Attitudes, Values and Beliefs

At the completion of this unit students will

A1. Recognise the value of a team-based approach to the development of information systems

A2. Value the importance of the systems design and implementation phases of the systems development lifecycle

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A3. Appreciate the importance of a systematic approach to the design and implementation phases of systems development

Practical Skills

At the completion of this unit students will be able to

P1. Prepare suitable design and implementation approach alternatives to the development of a business system

P2. Use basic design techniques in the development of elements of an information system

P3. Prepare and present a design specification for a business system

P4. Prepare and present an implementation plan for a business system

P5. Construct and implement a quality business system

P6. Develop expertise in IT practitioner tools

Relationships, Communication and TeamWork

At the completion of thus unit students will be able to

S1. Work effectively as part of a team responsible for carrying out systems design and implementation activities

S2. Present oral and written design and implementation deliverables with confidence to the relevant stakeholders

Workload

Unit relationships

Prerequisites

Before attempting this unit you must have satisfactorily completed:

- FIT1002 Computer Programming or CSE1203 or IMS1906 or equivalent and
- FIT1004 Database or CSE2132 or IMS1907 or equivalent and
- FIT2001 or CSE1205 or IMS1805 or equivalent.

Relationships

FIT2027 is a core unit in the *Systems Development* and *Information Systems* majors of the Bachelor of Information Technology and Systems degree.

You may not study this unit and BUS2021, BUS2071, GCO2813, IMS1002, IMS2071, IMS2805, SYS2161, SYS2168, CSE3308, BUS2071, CSC3151, GCO2816, CPE2003, CSE2200, FIT2005 in your degree.

Continuous improvement

Monash is committed to 'Excellence in education' 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. Two of the formal ways that you are invited to provide feedback are through Unit Evaluations and through Monquest Teaching Evaluations.

One of the key formal ways students have to provide feedback is through Unit Evaluation Surveys. It is Monash policy for every unit offered to be 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.

Student Evaluations

The Faculty of IT administers the Unit Evaluation surveys online through the my.monash portal, although for some smaller classes there may be alternative evaluations conducted in class.

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

Over the past few years the Faculty of Information Technology has made a number of improvements to its courses as a result of unit evaluation feedback. Some of these include systematic analysis and planning of unit improvements, and consistent assignment return guidelines.

Monquest Teaching Evaluation surveys may be used by some of your academic staff this semester. They are administered by the Centre for Higher Education Quality (CHEQ) and may be completed in class with a facilitator or on-line through the my.monash portal. The data provided to lecturers is completely anonymous.
Monquest surveys provide academic staff with evidence of the effectiveness of their teaching and identify areas for improvement. Individual Monquest reports are confidential, however, you can see the summary results of Monquest evaluations for 2006 at http://www.adm.monash.edu.au/cheq/evaluations/monquest/profiles/index.html

Improvements to this unit

The unit ran for the first time in 2007. Students (and staff) were very happy with the way the unit ran and the students didn't want any major changes to the method of delivery. The one suggestion that students did make - which has been adopted - is to introduce a early delivery of a component of the portfolio to help stop students from leaving the portfolio till the last few weeks.

Unit staff - contact details

Unit leader

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Lecturer(s) :

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Dr Saadat Alhashmi

Tutor(s) :

Mr David Grant
Sessional Academic Staff Member
Phone +61 3 990 34326
Mr Jacob Zhivov

Additional communication information

Students will find the Moodle-based discussion forum to be a very useful tool for contacting unit staff and getting questions answered and issues resolved.

Teaching and learning method

Each week there is a traditional lecture, for each lecture there will also reading - either from the unit text or additional readings posted on the unit web site. However, the primary vehicle for your learning in this unit will be the weekly 3 hour studio sesssion. The lectures are design to enhance the work you do in these sessions. The studios are very practical and will involve a wide range of tasks, including hand-ons work on computers, intellectual tasks such as system design, and writing, a range of group and team activities and presentations.

Tutorial allocation

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

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	Key dates
1	Introduction to the unit; The role of infrastructure	
2	Application design with UML	
3	Design UML I	
4	Design UML II	
5	Structured design revisited	
6	The role of walkthroughs	
7	Reporting system development	Partial submission of portfolio at end of week 7
8	Advanced topics in UML	
9	Designing and conducting tests	
10	Developing documentation	
11	Change management	
	Mid semester break	
12	Packaged software and enterprise resource planning	Portfolio submission at end of week 12
13	Unit review	

Unit Resources

Prescribed text(s) and readings

Prescribed Text

- Satzinger, J.W., Jackson, R.B. and Burd, S.B. (2006), *Systems Analysis and Design in a Changing World*, 4th ed., Thomson Course Technology.

Recommended text(s) and readings

Additional reading will be provided on the unit web site.

Equipment and consumables required or provided

Students studying off-campus are required to have the <u>minimum system configuration</u> 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:

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 studio tasks and exercises with sample solutions provided one to two weeks later (where appropriate);
- Assignment specification and portfolio specifications;
- Access to past and sample examination papers;
- Discussion groups that are monitored regularly by staff;
- Unit podcast; this will contain weekly lecture recordings, adhoc postings of interviews with industry professionals on topics related to the unit created by staff and students, and also recordings of presentations given by students.
- This Unit Guide outlining the administrative information for the unit;
- The unit web site on Moodle, 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 <u>http://www.lib.monash.edu.au</u>. Be sure to obtain a copy of the Library Guide, and if necessary, the instructions for remote access from the library website.

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 by assignment work (in the form of a portfolio) and a three hour closed book examination. To pass the unit you must:

- attempt both assignments and the examination
- achieve no less that 40% of the possible marks in the exam
- achieve no less than 50% of possible marks

Assignment tasks

- **Assignment Task**

    Title : Portfolio

    Description :

    In this unit the assigment submission will take the form of a portfolio. The portfolio is really a series of assignments that are submitted together as one package at the end of the semester. It is different to a normal assignment in that each student gets to choose what they do from a list of tasks (available on the unit web site). Each task will have a description and a deliverable and will also have a series of points associated with it. The points will include

    - ◆ Learning objectives points (design or implementation)
    - ◆ Individual points
    - ◆ Team points
    - ◆ Presentation points &
    - ◆ Value points

    You must perform and prepare for submission tasks that ensure you meet the minimum amount of point value for each criteria. This way - while you choose what you do, you will do a minumum amount of group work, individual work, work on each of the releveant learnign objectives and practice written and oral presentations. There are no set maximum points (you can do as much as you want). A partial submission of at least 10 value points must me made in week 7.

    Each item you choose to do can be submited for "feedback" as many times as you want. This feedback will include a "grade".

    The final mark given for the portfolio will be sum of all items submitted by their value points by the grade.

    The exam will include optional questions about portfolio tasks

    The full task list isavailable on the Moodle web site. Note that you can create your own tasks - provided they are certified by the teaching staff.

    For full details refer to the unit web site on Moodle.

    Weighting : 40%

    Criteria for assessment :

Due date : The end of week 12.

Examinations

- **Examination**

Weighting : 60%

Length : 3 hours

Type (open/closed book) : Closed book

Assignment submission

Your assignment portfolio will be submitted by electronic submission to via MUSO. The assignment will take the form of a portfolio. You will need to carefully read the submission requirements on the MUSO web site. It is important that you start work on your portfolio early in the semester, to do so will also mean that you udner stand the requriements of this form of assignment submission. This will be the subject of a great deal of discussion early in the unit, please make sure you fully understand what is required of you within the first 2 weeks of semster so you can begin productive work on your portfolio

Assignment coversheets

For details of the cover sheets required for your portfolio submission, refer to the unit web site hosted on MUSO.

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 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

Portfolios received after the due date may be subject to a penalty of 5% per day, including weekends. Portfolios received later than one week (seven days) 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/

You can expect to obtain feedback on draft portfolio items within two weeks of their submission, usually sooner - in the same studio session you make the submission if possible.

We will aim to have the overall result for your portfolio made available to you within two weeks after final submission.

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

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campus for further information and advice.