

FIT2001
Systems development

Unit Guide

Semester 2, 2015

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FIT2001 Systems development - Semester 2, 2015

The unit introduces students to systems analysis and design as a problem solving activity, within the framework of a selected methodology. It will focus on contemporary industry practice; investigating understanding and documenting system requirements; a range of design and implementation activities; and professional skills required for systems development.

Mode of Delivery

Caulfield (Day)

Workload Requirements

Minimum total expected workload equals 12 hours per week comprising:

(a.) Contact hours for on-campus students:

- Two hours of lectures
- One 2-hour laboratory
- One 1-hour meeting

(b.) Study schedule for off-campus students:

- Off-campus students generally do not attend lecture and tutorial sessions, however should plan to spend equivalent time working through the relevant resources and participating in discussion groups each week.

(c.) Additional requirements (all students):

- A minimum of 7 hours independent study per week for completing lab and project work, private study and revision.

See also Unit timetable information

Unit Relationships

Prohibitions

BUS2021, CPE2003, CSE1204, CSE1205, GCO1813, GCO2601, GCO2852, GCO2826, IMS1001, IMS1002, IMS1805, IMS2071, IMS9001

Co-requisites

FIT1004 or FIT2010

Chief Examiner

Ms Chris Gonsalvez

Campus Lecturer

Caulfield

Mehran Vahid

Consultation hours: To be advised. Alternatively, please contact me via email to organise an appointment.

Tutors

Caulfield

Mehran Vahid

Consultation hours: To be advised. Alternatively, please contact me via email to organise an appointment.

Siavash Alavian

Consultation hours: To be advised.

Your feedback to Us

Monash is committed to excellence in education and regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through the Student Evaluation of Teaching and Units (SETU) survey. The University's student evaluation policy requires that every unit is evaluated each year. Students are strongly encouraged to complete the surveys. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

For more information on Monash's educational strategy, see:

www.monash.edu.au/about/monash-directions/ and on student evaluations, see:
www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this Unit

In response to student feedback for this unit, the following changes have been made:

- The order of the lectures has been revised.
- The 2 assignments have been changed to 5 smaller assignments to encourage every student in the team to collaborate on all parts of the assignment rather than use the 'divide and conquer' method.

Student feedback has highlighted the following strength(s) in this unit:

- The tutorial participation in groups in the unit, which gives students the opportunity to collaborate, develop their teamwork skills, and benefit from learning from their peers.
- The case based approach used in tutorials which helps students contextualise the subject content.

If you wish to view how previous students rated this unit, please go to <https://emuapps.monash.edu.au/unitevaluations/index.jsp>

Academic Overview

Learning Outcomes

At the completion of this unit, students should be able to:

1. describe and analyse a range of system development methodologies and be able to assess when to use a particular approach;
2. describe key activities required for systems development;
3. apply problem solving techniques at different levels of abstraction;
4. select suitable techniques and methods to conduct analysis, design and implementation activities;
5. apply analysis and design techniques to a practical system development problem within a contemporary development methodology framework;
6. demonstrate an understanding of the professional skills required for effective systems development practice.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Introduction, The nature of systems development	Tutorials start in week 1. Tutorial participation is assessed each week.
2	Development approaches, Stakeholder management, Investigating system requirements	Interview appointments for Assignment 1 need to be scheduled in weeks 3 and 4.
3	Investigating, understanding and documenting system requirements - Why use modelling? User Stories, Use Cases	
4	Understanding and documenting system requirements - Use Case Diagrams, Use Case Narratives, and Activity Diagrams	Assignment 1 - Requirements gathering, due Friday 21 August 2015, 5pm
5	Prototyping	Peer Assessment 1 - Due Monday 24 August 2015, 5pm
6	System Design - Overview, Detailed design - Interface Design	Assignment 2 - System Overview, User Stories, Use Case Diagrams, and Use Case Narratives. Due Friday 4 September 2015, 5pm
7	System Understanding and documenting system requirements - Domain and class modelling	Peer Assessment 2 - Due Monday 7 September 2015, 5pm
8	System Design - System development approaches - Industry perspective, Build or Buy? Request for Proposal	Assignment 3.1 - Activity Diagrams, Prototyping & Interaction Design - Due Friday 18 September 2015, 5pm
9	Detailed design: OO fundamentals, Use case realisation with sequence diagrams, design class diagrams	Assignment 3.2 - Prototype demonstrations during tutorials; Peer Assessment 3 - Due Friday 25 September 2015, 5pm; Assignment 4 - Domain Modelling, due Friday, 25 September 2015, 5pm; Peer Assessment 4 - Due Sunday 27 September 2015, 11:50pm;
10	Testing the system	
11	Securing, implementing and maintaining the system	Assignment 5 - Sequence Diagrams & Design Class Diagrams due Friday 16 October 2015, 5pm
12	Guest Lecture - Review	Peer Assessment 5 - due Monday 19 October 2015, 5pm
	SWOT VAC	No formal assessment is undertaken in SWOT VAC
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html

*Unit Schedule details will be maintained and communicated to you via your learning system.

Teaching Approach

- **Lecture and tutorials or problem classes**

This teaching and learning approach provides facilitated learning, practical exploration and peer learning.

- **Studio teaching**

This approach is hands-on learning where you interact with fellow students in a studio environment.

Assessment Summary

Examination (3 hours): 50%; In-semester assessment: 50%

Assessment Task	Value	Due Date
Assignment 1: Requirements gathering and Peer Assessment 1	6%	Assignment 1 - Friday 21 August 2015, 5pm AND Peer Assessment 1 - Monday 24 August 2015, 5pm
Assignment 2 - System Overview, User Stories, Use Case Diagrams, and Use Case Narratives AND Peer Assessment 2	12%	Assignment 2 - Friday 4 September 2015, 5pm AND Peer Assessment 2 - Due Monday 7 September 2015, 5pm
Assignment 3 - Activity Diagrams, Prototyping & Interaction Design AND Peer Assessment 3	10%	Assignment 3.1 - Friday 18 September 2015, 5pm AND Assignment 3.2 - During tutorials in week beginning 21 September 2015 AND Peer Assessment 3 - Friday 25 September 2015, 5pm
Assignment 4 - Domain model class diagram AND Peer Assessment 4	6%	Assignment 4 - Friday 25 September 2015, 5pm AND Peer Assessment 4 - Sunday 27 September 2015, 11:50pm
Assignment 5 - Sequence Diagrams & Design Class Diagrams & Peer Assessment 5	6%	Assignment 5 - Friday 16 October 2015, 5pm AND Peer Assessment 5 - Monday 19 October 2015, 5pm
Tutorial participation	10%	In most tutorials during the semester
Examination 1	50%	To be advised

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

(<http://intranet.monash.edu.au/infotech/resources/staff/edgov/policies/assessment-examinations/assessment-hurdles>)

Academic Integrity - Please see resources and tutorials at

<http://www.monash.edu/library/skills/resources/tutorials/academic-integrity/>

Assessment Tasks

Participation

• Assessment task 1

Title:

Assignment 1: Requirements gathering and Peer Assessment 1

Description:

This group assignment involves demonstrating data gathering techniques, such as interviews and forms review to understand the system requirements.

Full details of the assignment will be available on the unit web site.

Weighting:

6%

Criteria for assessment:

The assignment will be assessed using the following main criteria:

- ◆ Timeliness of interview planning;
- ◆ Professionalism, completeness and accuracy of communication;
- ◆ Logical interview structure, and professionalism of language and delivery;
- ◆ Comprehensiveness and relevance of interview questions;
- ◆ Presentation and professionalism of the submission and supporting documentation.

Marks for individual group members may vary based on peer assessment, tutor observation and discussion with the group. All team members must complete the self and peer assessment for the assignment. Failure to complete the peer assessment will result in a 0 for the assignment.

Due date:

Assignment 1 - Friday 21 August 2015, 5pm AND Peer Assessment 1 - Monday 24 August 2015, 5pm

• Assessment task 2

Title:

Assignment 2 - System Overview, User Stories, Use Case Diagrams, and Use Case Narratives AND Peer Assessment 2

Description:

This group assignment involves demonstrating an understanding of the overall system requirements, and showing a detailed understanding of specified functions using User stories, Use Case diagrams, and Use Case narratives.

Full details of the assignment will be available on the unit web site.

Weighting:

12%

Criteria for assessment:

The assignment will be assessed using the following main criteria:

- ◆ Clarity and comprehensiveness of System overview;
- ◆ Clarity, completeness, accuracy and consistency of User Stories, Use Case diagrams and Use Case narratives;
- ◆ Conformance to modelling standards, and correct use of technique for Use Case diagrams and Use Case narratives;
- ◆ Presentation and professionalism of the submission and supporting documentation.

Marks for individual group members may vary based on peer assessment, tutor observation and discussion with the group. All team members must complete the self and peer assessment for the assignment. Failure to complete the peer assessment will result in a 0 for the assignment.

Due date:

Assignment 2 - Friday 4 September 2015, 5pm AND Peer Assessment 2 - Due Monday 7 September 2015, 5pm

• **Assessment task 3**

Title:

Assignment 3 - Activity Diagrams, Prototyping & Interaction Design AND Peer Assessment 3

Description:

This group assignment involves demonstrating a detailed understanding of how business requirements of specified functions will be met, with the use of Activity Diagrams, Prototyping and Interaction Design.

Full details of the assignment will be available on the unit web site.

Weighting:

10%

Criteria for assessment:

The assignment will be assessed using the following main criteria:

- ◆ Clarity, completeness, accuracy and consistency of Prototypes and Interaction Design and Activity Diagrams;
- ◆ Conformance to modelling standards, and correct use of technique for Activity diagrams;
- ◆ Presentation and professionalism of the submission and supporting documentation.

Marks for individual group members may vary based on peer assessment, tutor observation and discussion with the group. All team members must complete the self and peer assessment for the assignment. Failure to complete the peer assessment will result in a 0 for the assignment.

Due date:

Assignment 3.1 - Friday 18 September 2015, 5pm AND Assignment 3.2 - During tutorials in week beginning 21 September 2015 AND Peer Assessment 3 - Friday 25 September 2015, 5pm

• **Assessment task 4**

Title:

Assignment 4 - Domain model class diagram AND Peer Assessment 4

Description:

This group assignment involves demonstrating a detailed understanding of the data requirements of the overall system, and the business processes of specified functions using a Domain model class diagram.

Full details of the assignment will be available on the unit web site.

Weighting:

6%

Criteria for assessment:

The assignment will be assessed using the following main criteria:

- ◆ Clarity, completeness, accuracy and consistency of Domain Class models;
- ◆ Conformance to modelling standards, and correct use of technique for Domain Class models;
- ◆ Presentation and professionalism of the submission and supporting documentation.

Marks for individual group members may vary based on peer assessment, tutor observation and discussion with the group. All team members must complete the self and peer assessment for the assignment. Failure to complete the peer assessment will result in a 0 for the assignment.

Due date:

Assignment 4 - Friday 25 September 2015, 5pm AND Peer Assessment 4 - Sunday 27 September 2015, 11:50pm

• **Assessment task 5**

Title:

Assignment 5 - Sequence Diagrams & Design Class Diagrams & Peer Assessment 5

Description:

This group assignment involves demonstrating an understanding of what is required for the detailed design of specified functions in the system.

Full details of the assignment will be available on the unit web site.

Weighting:

6%

Criteria for assessment:

The assignment will be assessed using the following main criteria:

- ◆ Clarity, completeness, accuracy and consistency of the Sequence Diagrams and Design Class Diagrams;
- ◆ Conformance to modelling standards, and correct use of technique for Sequence Diagrams and Design Class Diagrams;
- ◆ Presentation and professionalism of the submission and supporting documentation.

Marks for individual group members may vary based on peer assessment, tutor observation and discussion with the group. All team members must complete the self and

Assessment Requirements

peer assessment for the assignment. Failure to complete the peer assessment will result in a 0 for the assignment.

Due date:

Assignment 5 - Friday 16 October 2015, 5pm AND Peer Assessment 5 - Monday 19 October 2015, 5pm

• **Assessment task 6**

Title:

Tutorial participation

Description:

Assessment will be based on both peer assessment and tutor observation. This assessment task will encourage you to demonstrate your understanding and knowledge of systems development practice by actively engaging in the tutorial activities.

Weighting:

10%

Criteria for assessment:

You must complete any pre-tutorial activities, and bring any required documentation to the tutorial. You must be prepared to discuss your findings in a tutorial review group, and use the knowledge to analyse and design a case study system during the tutorials. The assessment for this item is based on the peer evaluation and tutor observation of your performance in the review tutorials, and will include assessment of your preparation, participation and contribution, and your ability to allow and encourage others to contribute, and your ability to share your understanding of systems development practice with other students.

Due date:

In most tutorials during the semester

Remarks:

Tutorial participation mark calculation

If you have attended, you get the tutorial participation mark given to you based on your participation.

If you have not attended for a valid reason and have provided suitable evidence, the week is not counted in the Tutorial participation mark calculation.

If you have not attended, and have not provided any reason or suitable evidence as to why you have not attended, you receive a 0 for the week, and the week is counted, in the calculation.

So for example, if a student's participation is as follows:

Week 1 ***Participation assessment not done in the subject this week***

Week 2 **4**

Week 3 **3.5**

Week 4 **2**

Week 5 **Not applicable - Sick - evidence provided**

Week 6 **4**

Assessment Requirements

Week 7 **3.5**

Week 8 **4**

Week 9 **Participation not done in the subject this week - Public holiday**

Week 10 **0 - Did not attend - no evidence provided**

Week 11 **0 - Did not attend - no evidence provided**

Week 12 **4**

For the student above, the mark is calculated in the following way:

There are 10 out of the 12 weeks where participation was conducted in the subject. As the student did not attend for 1 week due to illness and evidence was provided, they have 9 weeks where participation will be counted. The student did not attend for another 2 weeks, but these weeks will be counted as they did not provide a reason or evidence. So for this student, their mark for tutorial participation will be calculated as follows:

Addition of all assessments = $4 + 3.5 + 2 + 4 + 3.5 + 4 + 0 + 0 + 4 = 25$

This is divided by 9 weeks = $25/9 = 2.77$

This equals 2.77 out of 5 which equals 55.5 out of 100 which is a grade of P

NOTE: While the student has generally done well when then have attended, their non-attendance for 2 weeks has had a bit impact on their grade.

Examinations

• Examination 1

Weighting:

50%

Length:

3 hours

Type (open/closed book):

Closed book

Electronic devices allowed in the exam:

None

Learning resources

Reading list

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.

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

Assessment Requirements

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. (2000) *Fundamentals of Object-Oriented Design in UML* Addison-Wesley.

Shelley, G.B. and H.J. Rosenblatt (2010) *Systems Analysis and Design*, 8th Edition, Thomson Course Technology.

Monash Library Unit Reading List (if applicable to the unit)
<http://readinglists.lib.monash.edu/index.html>

Feedback to you

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

- Informal feedback on progress in labs/tutes
- Graded assignments with comments

Extensions and penalties

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.monash.edu.au/exams/special-consideration.html>

Returning assignments

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

Assignment submission

It is a University requirement

(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-managing-pla>) for students to submit an assignment coversheet for each assessment item. Faculty Assignment coversheets can be found at <http://www.infotech.monash.edu.au/resources/student/forms/>. Please check with your Lecturer on the submission method for your assignment coversheet (e.g. attach a file to the online assignment submission, hand-in a hard copy, or use an electronic submission). Please note that it is your responsibility to retain copies of your assessments.

Online submission

If Electronic Submission has been approved for your unit, please submit your work via the learning system for this unit, which you can access via links in the my.monash portal.

Required Resources

Please check with your lecturer before purchasing any Required Resources. Limited copies of prescribed texts are available for you to borrow in the library, and prescribed software is available in student labs.

Students will also require access to standard personal productivity tools (word processing, graphics and presentation). These are available in the Labs.

Recommended text(s)

John W Satzinger, Robert B Jackson, Stephen D Burd. (2012). *Systems Analysis And Design In A Changing World*. (6th Edition) Course Technology Cengage Learning.

Other Information

Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University's academic standards, and to provide advice on how they might uphold them. You can find Monash's Education Policies at:

www.policy.monash.edu.au/policy-bank/academic/education/index.html

Faculty resources and policies

Important student resources including Faculty policies are located at

<http://intranet.monash.edu.au/infotech/resources/students/>

Graduate Attributes Policy

<http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.h>

Student Charter

www.opq.monash.edu.au/ep/student-charter/monash-university-student-charter.html

Student services

The University provides many different kinds of support services for you. Contact your tutor if you need advice and see the range of services available at <http://www.monash.edu.au/students>. For Malaysia see <http://www.monash.edu.my/Student-services>, and for South Africa see <http://www.monash.ac.za/current/>.

Monash University Library

The Monash University Library provides a range of services, resources and programs that enable you to save time and be more effective in your learning and research. Go to www.lib.monash.edu.au or the library tab in [my.monash](#) portal for more information. At Malaysia, visit the Library and Learning Commons at <http://www.lib.monash.edu.my/>. At South Africa visit <http://www.lib.monash.ac.za/>.

Disability Liaison Unit

Students who have a disability or medical condition are welcome to contact the Disability Liaison Unit to discuss academic support services. Disability Liaison Officers (DLOs) visit all Victorian campuses on a regular basis.

- Website: <http://www.monash.edu/equity-diversity/disability/index.html>
- Telephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Community Services at 03 55146018 at Malaysia
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Malaysia Campus

Other

Engineers Australia Stage 1 competencies

This unit is a core unit in the Bachelor of Software Engineering accredited by Engineers Australia. Engineers Australia Accreditation Policy of Professional Engineering Programs requires that programs demonstrate how engineering graduates are prepared for entry to the profession and achieve Stage 1 competencies. The following information describes how this unit contributes to the development of these competencies for the Bachelor of Software Engineering. (Note: not all competencies may be emphasised in this unit).

Stage 1 competency

How the competency is developed in this unit

1. *Knowledge and Skills base*

1.1. **Comprehension, theory based understanding** of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.

Theoretical lecture materials, prescribed texts and recommended reading, tutorials and laboratory tasks.

1.2. **Conceptual understanding** of the mathematics, numerical analysis, statistics, and computer and information sciences, which underpin the engineering discipline.

Not covered in this unit.

1.3. **In-depth understanding** of specialist bodies of knowledge within the engineering discipline.

Lecture materials, tutorials and lab exercises relating to life cycle models, requirements analysis techniques, design notations, and quality assurance techniques.

1.4. **Discernment** of knowledge development and research directions within the engineering discipline.

Lectures discuss the evolution of SE methodologies. Lectures mention some areas of current SE methodology, but it is not a focus in an introductory unit.

1.5. **Knowledge** of engineering design practice and contextual factors impacting the engineering discipline.

Lecture and tutorial content on process models relates customer and project attributes to process model selection. Lectures discuss sources and consequences of failure.

1.6. **Understanding** of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline.

Not covered in this unit.

2. *Engineering application ability*

2.1. **Application** of established engineering methods to complex engineering problem solving.

The core content of the unit is teaching the standard software engineering process model for system development.

2.2 **Fluent application** of engineering techniques, tools and resources.

Students learn to use design notations such as UML and create diagrams using tools.

2.3. **Application** of systematic engineering synthesis and design processes.

Students are taught standard analysis and design techniques. These are covered extensively in lectures, tutorials, and practical exercises.

2.4. **Application** of systematic approaches to the conduct and management of engineering projects.

A number of software engineering methodologies are mentioned in lectures, and the agile process is discussed more extensively

and used throughout the practical exercises. Different types of project team structures are discussed in lectures.

3. Professional and personal attributes

- 3.1. **Ethical** conduct and professional accountability. Not covered in this unit.
- 3.2. **Effective** oral and written communication in professional and lay domains. Students have to express themselves clearly and effectively for their assessment components of the unit.
- 3.3. **Creative**, innovative and proactive demeanour. Some creativity is encouraged to develop solutions for the assessment components.
- 3.4. **Professional** use and management of information. Not covered in this unit.
- 3.5. **Orderly** management of self, and professional conduct. This is covered in the unit through the development of solutions to exercises and assignments.
- 3.6. **Effective** team membership and team leadership. Team structures and software engineering roles are discussed in lectures, and all student practical exercises and assignments are conducted in teams.

Relationship between Unit Learning Outcomes and BSE Course Outcomes

No.	CO 1	CO 2	CO 3	CO 4	CO 5	CO 6	CO 7	CO 8	CO 9	CO 10	CO 11	CO 12	CO 13
1		X		X	X	X		X				X	
2		X		X	X	X		X	X	X	X		
3		X		X	X	X			X	X	X		
4		X		X	X	X			X	X	X		
5		X		X	X	X	X						X
6		X	X	X	X					X	X		
7		X											
8		X						X					

Relationship between Unit Learning Outcomes and Assessments

No.	Assignments	Tests	Practical Exercises	Exam
1	X		X	X
2	X		X	X
3	X		X	X
4	X		X	X
5	X		X	X
6	X		X	X
7			X	X
8				X