



**MONASH** University  
Information Technology

**FIT1010**  
**Introduction to software engineering**

**Unit Guide**

**Semester 2, 2012**

The information contained in this unit guide is correct at time of publication. The University has the right to change any of the elements contained in this document at any time.

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# **FIT1010 Introduction to software engineering - Semester 2, 2012**

This unit provides an introduction to the discipline of Software Engineering. The emphasis is upon a broad coverage of the areas, since students will at this early stage not have adequate programming skills to tackle many of the topics in greater depth. The notion of a software system as a model or approximation of a desired system is introduced, and used as a way of describing such things as the software life cycle and its various models, programming by contract, design and testing issues, maintenance, reuse, complexity, divide and conquer strategies, metrics and measurement, project management and software legacy.

## **Mode of Delivery**

Clayton (Day)

## **Contact Hours**

2 hrs lectures/wk, 2 hrs laboratories/wk, 1 hr tutorial/wk

## **Workload**

Students will be expected to spend a total of 12 hours per week during semester on this unit as follows:

- two hours of lectures and
- one hour tutorial (requiring advance preparation)
- two hours laboratory (requiring advance preparation)
- a minimum of 7 hours of personal study each week in order to satisfy the reading and assessment expectations.

## **Unit Relationships**

### **Prohibitions**

CSE1401

### **Prerequisites**

FIT1002 or equivalent

### **Chief Examiner**

Associate Professor Ann Nicholson

### **Campus Lecturer**

## **Clayton**

**Robert Merkel**

Consultation hours: Monday 2pm-3pm Wednesday 11am-12pm

## **Tutors**

### **Clayton**

**Robyn Mcnamara**

# Academic Overview

## Outcomes

At the completion of this unit students will have:

- an understanding of the breadth and nature of the discipline of Software Engineering;
- an understanding of the effect and implications of complexity in large software systems;
- an understanding of the issues in constructing large software systems from its components, and the nature and design of those components;
- an awareness of the responsibilities placed upon a software engineer;
- an ability to use basic modelling techniques to define and describe the behaviour of software systems;
- an understanding of common software team structures and have developed practical skills in solving small problems in teams.

## Graduate Attributes

Monash prepares its graduates to be:

1. responsible and effective global citizens who:
  - a. engage in an internationalised world
  - b. exhibit cross-cultural competence
  - c. demonstrate ethical values

critical and creative scholars who:

- a. produce innovative solutions to problems
- b. apply research skills to a range of challenges
- c. communicate perceptively and effectively

## Assessment Summary

Examination (3 hours): 60%; In-semester assessment: 40%

<b>Assessment Task</b>	<b>Value</b>	<b>Due Date</b>
Weekly Quizzes	5%	Weekly, on-line, Monday before 10am.
Practical class assessments	25%	Weekly in Lab classes
Work Folio	5%	Friday, Week 12
Tutorial preparation and participation	5%	Weekly in tutorial from weeks 1 to 12
Examination 1	60%	To be advised

## Teaching Approach

### Lecture and tutorials or problem classes

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

### Feedback

### Our 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
- Graded assignments without comments
- Quiz results
- Solutions to tutes, labs and assignments

### 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 SETU, Student Evaluation of Teacher and Unit. 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, and on student evaluations, see:

<http://www.monash.edu.au/about/monash-directions/directions.html>

<http://www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html>

### Previous Student Evaluations of this unit

This year only minor changes have been made to the unit. There will be some extra material on software testing, and some material on legal and ethical aspects will be omitted as it will be covered more comprehensively in other units.

**Staff-Student Meetings:** Student also have the opportunity to provide feedback during the semester via student representatives at the Clayton School of IT Staff-Student meetings. Information about who your reps are and minutes of previous meetings are available at:

<http://www.infotech.monash.edu.au/current/student-resources/staff-student-meetings/clayton/2012/>

If you wish to view how previous students rated this unit, please go to

<https://emuapps.monash.edu.au/unitevaluations/index.jsp>

### 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.

**Prescribed text: (the lectures will follow this text quite closely, and the lecture slides from the text will be made available)**

- Stephen R. Schach: Object-Oriented Software Engineering, 2008. McGraw-Hill 2008.

(Note: Schach's "Object-Oriented & Classical Software Engineering", 7th edition and 8th edition are very similar, and can be used in place of the 2008 "Object-oriented" version, if need be).

## **Recommended Resources**

Pressman, R. S. (2009), *Software engineering : a practitioner's approach*, 7th ed, McGraw-Hill, Dubuque, IA.

Sommerville, I, (2011), *Software engineering*, 9th ed, International edition, Addison-Wesley, Harlow.

If you wish to work at home, you can install the free BlueJ development environment:

<http://www.bluej.org>

No installation support will be provided for home installations of BlueJ.

## **Examination material or equipment**

The exam will be an "open book" exam. Students may take in textbooks, any of the unit teaching material and any notes they have made themselves. More details will be provided on the unit website prior to the exam.

## Unit Schedule

Week	Activities	Assessment
0	Check your tutorial and lab class enrolments.	No formal assessment or activities are undertaken in week 0
1	Introductions. Note: TUTORIALS START WEEK 1 (Monday/Tuesday)	Assessment task 4: Tutorial preparation and participation - Weekly in tutorial from weeks 1 to 12
2	Software Lifecycles	Assessment task 1: Weekly quizzes (weeks 2-12) to be submitted via Moodle, closing each Monday before 10am; Assessment task 2: Practical class assessments - weekly (weeks 2-12) in Lab classes
3	Requirements	
4	Analysis	
5	Dynamic modelling	
6	Design	
7	Modules	
8	Testing	
9	Implementation	
10	Formal Methods	
11	Ethics	
12	Tools/Review	Assessment task 3: Work Folio due Friday
	SWOT VAC	No formal assessment is undertaken in SWOT VAC
	Examination period	LINK to Assessment Policy: <a href="http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html">http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html</a>

\*Unit Schedule details will be maintained and communicated to you via your MUSO (Blackboard or Moodle) learning system.



# Assessment Requirements

## Assessment Policy

Faculty Policy - Unit Assessment Hurdles

(<http://www.infotech.monash.edu.au/resources/staff/edgov/policies/assessment-examinations/unit-assessment-hu>)

Academic Integrity - Please see the Demystifying Citing and Referencing tutorial at

<http://lib.monash.edu/tutorials/citing/>

## Assessment Tasks

### Participation

#### • Assessment task 1

**Title:**

Weekly Quizzes

**Description:**

Weekly on-line multiple choice quizzes. These will be open on-line each week and must be completed before Monday 10am

**Weighting:**

5%

**Criteria for assessment:**

Correct answers demonstrating basic knowledge and understanding of course material.

**Due date:**

Weekly, on-line, Monday before 10am.

**Remarks:**

Each quiz closing on Monday will cover material from the previous week's lecture. This material will be required for the tutorial and laboratory work following the closing of the quiz. The intention is that the quiz will assist students to prepare for these tutorial and lab classes.

#### • Assessment task 2

**Title:**

Practical class assessments

**Description:**

Range of tasks, including team exercises, software design, implementation.

Some work will be assessed individually, whereas for some assessment activities, students will work in pairs.

**Weighting:**

25%

**Criteria for assessment:**

For group work, some marks will be for the group as a whole, some for an individual's contribution; details will be specified in the assessment task description.

Some tasks will be assessed in the lab class itself. When marking is done outside the lab, in most cases students must submit their work at the end of the lab class. Details will be given with each the lab class description provided each week.

**Due date:**

Weekly in Lab classes

• **Assessment task 3**

**Title:**

Work Folio

**Description:**

Students must produce a range of documents (text, UML diagrams, code, etc) from tutorial and laboratory class activities. These will be collected in a Google Documents folder that will form an "eFolio". A more detailed description of the requirements for the eFolio will be available on the unit Moodle site.

**Weighting:**

5%

**Criteria for assessment:**

A set of guidelines for the eFolio is provided online.

Criteria for assessing the folio are:

1. Inclusion of all specified documents (completeness)
2. Appropriateness of contents and presentation
3. Organisation

**Due date:**

Friday, Week 12

• **Assessment task 4**

**Title:**

Tutorial preparation and participation

**Description:**

Students will work on individual and group based tutorial activities that in most cases align with the previous week's lecture objectives, and the lab class following the tutorial.

**Weighting:**

5%

**Criteria for assessment:**

Students will be assessed on their participation during the tutorials, such as group work on activities and contributions to discussions. They will also be expected to prepare and make presentations to the class at various times during the semester, which will contribute to this assessment.

**Due date:**

Weekly in tutorial from weeks 1 to 12

## Examinations

• **Examination 1**

**Weighting:**

60%

**Length:**

2 hours

**Type (open/closed book):**

Open book

**Electronic devices allowed in the exam:**

None

## **Assignment submission**

It is a University requirement

(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html>) 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 online quiz).

## **Online submission**

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

## **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.infotech.monash.edu.au/resources/student/equity/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.

## **Resubmission of assignments**

If students do not attend a laboratory class, they cannot submit work for that assessment later. Late or re-submissions may be permitted at the discretion of the demonstrator or lecturer, for example if there have been technical difficulties during the laboratory class.

## 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:

<http://policy.monash.edu.au/policy-bank/academic/education/index.html>

Key educational policies include:

- Plagiarism  
(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-policy.html>)
- Assessment  
(<http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-p>)
- Special Consideration  
(<http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.h>)
- Grading Scale  
(<http://www.policy.monash.edu/policy-bank/academic/education/assessment/grading-scale-policy.html>)
- Discipline: Student Policy  
(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-discipline-policy.html>)
- Academic Calendar and Semesters (<http://www.monash.edu.au/students/key-dates/>);
- Orientation and Transition (<http://www.infotech.monash.edu.au/resources/student/orientation/>);  
and
- Academic and Administrative Complaints and Grievances Policy  
(<http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy>)
- Codes of Practice for Teaching and Learning  
(<http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-tea>)

### 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 [www.monash.edu.au/students](http://www.monash.edu.au/students). For Sunway see <http://www.monash.edu.my/Student-services>, and for South Africa see <http://www.monash.ac.za/current/>

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

Academic support services may be available for students who have a disability or medical condition. Registration with the Disability Liaison Unit is required. Further information is available as follows:

- Website: <http://monash.edu/equity-diversity/disability/index.html>;
- Email: [dlu@monash.edu](mailto:dlu@monash.edu)
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus
- Telephone: 03 9905 5704, or contact the Student Advisor, Student Community Services at 03 55146018 at Sunway

## Reading list

Recommended (good general "classic" software engineering texts):

- Pressman: Software Engineering - A practitioner's approach, McGraw-Hill. (Latest edition?)
- Sommerville, Software Engineering, Addison-Wesley. (Latest edition?)

Also, for the "Ethics" topic, the reading will be Chapter 8 from

- Michael J. Quinn. Ethics for the Information Age, 4th ed. Boston, MA: Addison-Wesley, 2011 (available electronically from the Monash library reading list:<http://lib.monash.edu/resourcelists/f/fit1010.html>)