MONASH University
Information Technology

FIT1010
Introduction to software engineering

Unit Guide

Semester 2, 2011

Last updated: 22 Aug 2011

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FIT1010 Introduction to software engineering - Semester 2, 2011

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 inorder to satisfy the reading and assessment expectations.

Unit Relationships

Prohibitions

CSE1401

Prerequisites

FIT1002 or equivalent

Chief Examiner

Associate Professor Ann Nicholson

Campus Lecturer

Clayton

Ann Nicholson

Tutors

Clayton

Robyn Mcnamara

Mauro Bampo

Lauchlin Wilkinson

Vitaly Sender

Academic Overview

Learning Objectives

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%

Assessment Task	Value	Due Date
Weekly Quizzes	5%	Weekly, on-line, Monday before 10am.
Practical class assessments	25%	Weekly in Lab classes
Work Folio	5%	Friday, Week 12
Tutorial attendance, 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

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

Required Resources

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).

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)	Tutorial attendance, preparation and participation
2	Software Lifecyles	Weekly quizzes (on Moodle) closing each Monday; Practical class assessments; Tutorial attendance, preparation and participation
3	Requirements	Weekly quizzes (on Moodle) closing each Monday; Practical class assessments; Tutorial attendance, preparation and participation
4	Analysis	Weekly quizzes (on Moodle) closing each Monday; Practical class assessments; Tutorial attendance, preparation and participation
5	Dynamic modelling	Weekly quizzes (on Moodle) closing each Monday; Practical class assessments; Tutorial attendance, preparation and participation
6	Design	Weekly quizzes (on Moodle) closing each Monday; Practical class assessments; Tutorial attendance, preparation and participation
7	Modules	Weekly quizzes (on Moodle) closing each Monday; Practical class assessments; Tutorial attendance, preparation and participation
8	Testing	Weekly quizzes (on Moodle) closing each Monday; Practical class assessments; Tutorial attendance, preparation and participation
9	Implementation	Weekly quizzes (on Moodle) closing each Monday; Practical class assessments; Tutorial attendance, preparation and participation
10	Formal Methods	Weekly quizzes (on Moodle) closing each Monday; Practical class assessments; Tutorial attendance, preparation and participation
11	Ethics	Weekly quizzes (on Moodle) closing each Monday; Practical class assessments; Tutorial attendance, preparation and participation
12	Tools/Review	Weekly quizzes (on Moodle) closing each Monday; Practical class

Unit Schedule

		assessments; Tutorial attendance, preparation and participation ; The eFolio must be finalised by Friday of Week 12
	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 MUSO (Blackboard or Moodle) learning system.

Assessment Requirements

Assessment Policy

To pass a unit which includes an examination as part of the assessment a student must obtain:

- 40% or more in the unit's examination, and
- 40% or more in the unit's total 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 total assessment, and the total mark for the unit is greater than 50% then a mark of no greater than 49-N will be recorded for the unit

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 decription 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 attendance, 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 attendance at tutorials and 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).

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 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. 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://adm.monash.edu/sss/equity-diversity/disability-liaison/index.html;
- Telephone: 03 9905 5704 to book an appointment with a DLO;
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus.

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?)

Other Information

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