



MONASH University
Information Technology

FIT4002
Software engineering studio project

Unit Guide

Semester 1, 2010

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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FIT4002 Software engineering studio project - Semester 1, 2010

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Introduction

Students will undertake a large project and work in groups on a software project for a client. The client may be internal to Monash or from the industry or research organisation. In general, projects involve all aspects of the system development lifecycle. Groups are responsible for their own project management, with guidance from a supervisor.

Software Engineering Studio unit is a 12 point, full year unit. Students have a lecture/seminar series scheduled for 2 hours / week plus other activities as outlined in the assessment details. Students undertake most of their team work in the MUSE Studio lab.

Unit synopsis

Students will undertake a large project and work in groups on a software project for a client. The client may be internal to Monash or from the industry or research organisation. In general, projects involve all aspects of the system development lifecycle. Groups are responsible for their own project management, with guidance from a supervisor. Some projects will warrant students working in pairs or individually.

Learning outcomes

At the completion of this unit students will have:

- experience of all stages in the development of a SE project
- experience of the role and responsibilities of clients and developers in a SE project
- understanding of the way in which computer systems are designed, developed and implemented;
- understanding of the role of methodologies, tools and techniques;
- understanding of the processes and components of a quality system;
- ability to adopt a systematic and professional approach to the production of quality computer systems;
- understanding of ethical behaviour;
- ability to plan and manage the full range of activities in an SE project;
- ability to work productively in a team and individually;
- ability to communicate effectively with clients and users;
- ability to develop and deliver on time a computer system that meets the specified requirements.

Contact hours

2 hrs lectures/wk

Workload

For SE Studio unit, workload commitments are for 2 semesters of study:

- two-hour lecture/seminar series
- laboratory assessment on ongoing basis as per milestones & hurdles given in the assessment component (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.
- 1 group presentation & assessment interviews (grp & individual) per semester
- You will need to allocate up to 5 hours per week in some weeks

Unit relationships

Prerequisites

FIT3077 or CSE3308 and one of FIT2002, FIT3086 or BUS2176

Prohibitions

CSE4002

Teaching and learning method

Teaching approach

Full year Team Project sourced from the industry.

Students work usually in teams of 4-5.

Teaching/Learning in terms of seminars from the Lecturer to assist with the SE project development. Details laid out in the handbook available on the MUSO site regarding expectations & responsibilities from the supervisor, client & student side. Milestones are spelt out in the handbook which needs to be adhered to warrant marks for individuals & teams.

Timetable information

For information on timetabling for on-campus classes please refer to MUTTS, <http://mutts.monash.edu.au/MUTTS/>

Tutorial allocation

On-campus students should register for tutorials/laboratories using the Allocate+ system: <http://allocate.its.monash.edu.au/>

Unit Schedule

Week	Date*	Topic	Study guide	Key dates
1	01/03/10	sem 1: Welcome to Unit/Admin/Team selection/Project selection.	Lectures/Seminars resources online on MUSO	sem 2: Hurdle - Update on Project status
2	08/03/10	sem1: IEEE Standards for SRS, QA, Test plans;	see MUSO for IEEE Standards to be used in the Projects	fortnightly team meeting with supervisor
3	15/03/10	sem1: proj management; CVS/SVN;	Notes on unit site in MUSO	sem 1 & 2: Progress report fortnightly odd weeks except week 1, sem1 & week 13 sem 2; sem 1- indiv. seminar preference to Lecturer; prelim. proj. plan(PMP);
4	22/03/10	sem 1: Function Point; Test oriented dev;		fortnightly team meeting with supervisor;
5	29/03/10	sem 1: Requirement Engineering;		Penultimate PMP; Legal agreements signed by client & students; group

				peer assessment; Prelim. software req.; Preliminary Project Management Report
Mid semester break				
6	12/04/10	sem 1: Software process;		fortnightly team meeting with supervisor
7	19/04/10	sem 1: class seminar series by Lecturer/student teams; sem 1 & 2 : SE Project		sem 1: prelim software prototype;
8	26/04/10	sem 1: class seminar series by Lecturer/student teams; sem 1 & 2: SE Project		fortnightly team meeting with supervisor
9	03/05/10	sem 1: class seminar series by lecturer/student teams; sem 1 & 2:SE Project		sem 1: penultimate SRS; software walk through;
10	10/05/10	sem 1: class seminar series by lecturer/student teams; sem 1 & 2:SE Project		fortnightly team meeting with supervisor;
11	17/05/10	sem 1: class seminar series by lecturer/student teams; sem 1 & 2:SE Project		sem 1: Final PMP & SRS; Individual SWEBOK Interview in sem 1 & 2 week10-11;
12	24/05/10	sem 1: class seminar series by lecturer/student teams; sem 1 & 2:SE Project		Group presentation of project
13	31/05/10	sem 1 & 2: SE Project		fortnightly team meeting with supervisor

*Please note that these dates may only apply to Australian campuses of Monash University. Off-shore students need to check the dates with their unit leader.

Improvements to this unit

Monquest evaluation is planned.

Unit Resources

Prescribed text(s) and readings

Please refer to the Recommended text list below as there are no set texts that students must purchase for this unit.

Recommended text(s) and readings

Relevant Journal Articles and Conference Proceedings depending on the project chosen. Gilb T and Graham D, Software inspection, Addison-Wesley, 1993 Humphrey W, Managing the software process, Addison-Wesley, Pfleeger S.L., Software Engineering Theory and Practice, Prentice Hall 2001 Somerville I.S., Software Engineering Addison Wesley 2001 Sallis P, Tate G and MacDonell S, Software Engineering: Practice, Management, Improvement, Addison-Wesley, 1995 Humphrey W, Introduction to the Personal Software Process, Addison Wesley 2000 Pressman R.S., Software Engineering, A Practitioner's approach, Fifth Ed., McGraw Hill, 2001 Maciaszek, Requirements Analysis and System Design: Developing Information Systems with UML 2001, Prentice-Hall, 2001 Stiller, Project-based Software Engineering, Prentice-Hall, 2001

Required software and/or hardware

customised SE lab called MUSE lab at Clayton with the standard lab image plus high end software engineering & testing tools from IBM/Rational, Websphere software from IBM, Testing tools from Compuware. Open source tools such as Eclipse, Junit & coverage testing tools

Study resources

Study resources we will provide for your study are:

FIT4002 is a final year capstone project which runs over 2 semesters.

You can access MUSO and Blackboard via the portal (<http://my.monash.edu.au>).

weekly lecture/seminar series topics are also available at the site.

Hurdle dates, Milestones, Interviews, Presentations, Reports due dates/weeks are available on the website above.

Assessment

Overview

Assignments: 100%

Faculty 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.

Schedule of Deliverables

While the software life cycle, process and organisation may be different for each project, overall milestones, hurdles and timelines are the same for grading and external project tracking by the unit leader and the academic supervising the project. Some of the assessed deliverables are 'major' efforts and most are group efforts and therefore need to be developed incrementally. To cater for different processes and life cycles, we refer to multiple versions of key milestone documents and product releases: our terminology distinguishes an *Preliminary Version*, a *Penultimate Version* and a *Final Version*. The preliminary and penultimate versions are assessed as a major assessment item in the first and second semester, respectively. They are also the basis for client sign-off before the end of the respective semester. Further improvements will then refine some of these documents and software packages until the end of the respective semester.

Depending on the agreed process (which may differ from project to project) and possibly depending on agreements with the client, subsequent revisions will be very rare and must be approved by a rigorous revision control protocol, where any ramifications, in terms of further work and resources implied must be considered carefully beside the desirability of the change from the viewpoint of the client, and must be balanced against the original plan and other tasks still planned.

In any event the penultimate version is going to be the key deliverable for the purposes of hurdle requirements and also for client sign-off on the major project results in second semester.

Hurdle Points Attendance in lectures and seminars (held in the scheduled lecture hours) is mandatory and will be recorded. Many lectures and seminars are for training purposes in group collaboration, project management, methods and tools.

Regular supervision meetings and progress reports are hurdle points. Meetings and hurdle deliverables follow a weekly or fortnightly pattern.

In addition, some assessable items must be delivered at a particular hurdle point (a) to define major group work in achievable chunks and (b) for the supervisor to provide early feedback and help steer group work in the right direction.

Hurdle Requirements

The individual student must miss no more than 3/12 meetings and no more than 3/12 lectures. Moreover, the group must not deliver late more than 2/6 progress reports in each semester and not more than 2/6 specific hurdles.

Finally, in order to pass the subject, a student must achieve at least 32/65 project marks and 17/35 individual marks.

Milestones

Beside final deliverables, milestones include one-on-one interviews, group walkthroughs, public presentations and seminars (given to all students and supervisors).

Walkthroughs

Walkthroughs are conducted in the MUSE Studio or elsewhere in a meeting with the supervisor and/or the client. You are required to demonstrate your prototype (1. semester) or product (2. semester) and walk the supervisor and/or client through parts of the accompanying code and design documents (1. semester) or through code and test suite (2. semester) with the help of your development tools.

Since these are installed in the MUSE Studio, you will typically use the MUSE Studio for the walkthrough. The walkthrough is a group effort. Every group member gets the same time allocated for presenting one part or aspect of the system - typically but not necessarily her/his own part in the project. The individual mark will reflect the knowledge of the system as displayed by the individual, their presentation skills and handling of questions etc. The group mark reflects the overall merits of the system as demonstrated and presented by all.

Interviews

SWEBOK interviews are short oral exams (15 min) typically conducted in the exam period by a panel of two supervisors. Your supervisors may be prepared to schedule the interview prior to the exam period. SWEBOK interviews make up a major part of your individual marks in this subject.

The interviews are conducted individually and assess your individual knowledge of the project and the application of the Software Engineering Body of Knowledge (SWEBOK) to the project. Since the interviews are short, not all of the SWEBOK can be tested in each interview. The supervisor will randomly pick relevant topics. **You must be prepared for every SWEBOK topic** since you may be examined on any SE knowledge and your skills in applying this knowledge. For example the supervisor may examine your detailed knowledge of the project documents and solutions, define hypothetical changes to your project requirements and ask you to modify your current project solution, or, if s/he so chooses, ask you to demonstrate your practical skills with tools in the MUSE Studio.

Prepare well and revisit your SE textbooks. You are not allowed to use the text book during the interview. However you are allowed to bring your project documents along. I suggest your project keeps one complete set of documents as a binder for this purpose.

The best preparation for the interview is a review of your SWEBOK knowledge BEFORE you perform the corresponding task prior to the interview. Then - come the interview - you will be best prepared to briefly summarise the relevant knowledge, discuss how this is manifested in the project and detail the relevant project artifact (document or software etc).

Individual Seminar Students give a seminar (approximately 20min plus 5min Q&A time) on a topic of advanced technology. The topic is chosen and assigned by the unit lecturer after students nominate

themes of interest - typically of interest to the project. 5. Group Marks

Group marks are given for group deliverables and adjusted according to the individual contribution. The latter is defined by a *contribution factor* as per supervisor assessment of the each project member. The contribution factor is measured in percentage points, i.e., it is given as a mark out of 100. The group peer assessment (per semester) will also be considered by the supervisor in assessing the individual project contribution.

The following adjustment formula will be used $Max(30, N \times G \times C)$, where N is the number of project members, G the group mark and C the contribution percentage.

Example 1: Project W achieves full marks of 30 in semester 1 with even contribution of 20% per team member. Each team member will get a group mark of 30.

Example 2: Project X might attract 15 group marks (of the total of 30 marks). Project X has 5 project members contributing 10%, 10%, 20%, 30% and 30% respectively. Then their respective marks will be scaled accordingly to 7.5, 7.5, 15, 22.5 and 22.5 marks.

Example 3: Project Y might attract 15 group marks (of the total of 30 marks in semester 1). The project has 5 project members contributing 0%, 0%, 0%, 0% and 100% respectively. Then their respective marks will be adjusted accordingly to 0, 0, 0, 0, 30 marks.

Example 4: Project Z attracts 6 group marks (of 30). The project has 5 project members contributing 0%, 0%, 0%, 0% and 100% respectively. Then their respective marks will be scaled accordingly to 0, 0, 0, 0, 30 marks.

For more details: see MUSO site for more details

Assignment tasks

Assignment coversheets

Assignment coversheets are available via "Student Forms" on the Faculty website:

<http://www.infotech.monash.edu.au/resources/student/forms/>

You MUST submit a completed coversheet with all assignments, ensuring that the plagiarism declaration section is signed.

Assignment submission and return procedures, and assessment criteria will be specified with each assignment.

• Assignment task 1

Title:

FIT4002 is a full year unit worth 100. sem 1 & 2 each worth 50marks. Hurdles must be met as well as Milestones which are worth marks. Due dates are prior to class on the week assigned for assessments. The milestones on MUSO site includes weeks for both sem 1 & 2.

Description:

Full year Project

Weighting:

100%

Due date:

see weeks due above

- **Assignment task 2**

Title:

Group Presentation of Project assessed by Lecturer & Supervisors Week 10-12 (grp mark 10) per sem in a seminar room

Description:

Group presentation

Weighting:

20%

Due date:

- **Assignment task 3**

Title:

Final PMP & SRS in sem 1 (Grp mark 15); Final Product & report Week 11 (Grp mark 20) in sem 2

Description:

Project Management Plan & Software Spec Sem 1

Final product & report - sem 2

Weighting:

see above for weighting details

Due date:

see above for due weeks/dates

- **Assignment task 4**

Title:

Attendance mandatory for classes - see hurdle page on MUSO for this unit.

Description:

see hurdle page on Blackboard (MUSO) site.

Weighting:

see above for weighting details

Due date:

see due week/date above

Due dates and extensions

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 not regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Students requesting an extension for any assessment during semester (eg. Assignments, tests or presentations) are required to submit a Special Consideration application form (in-semester exam/assessment task), along with original copies of supporting documentation, directly to their lecturer within two working days before the assessment submission deadline. Lecturers will provide specific outcomes directly to students via email within 2 working days. The lecturer reserves the right to refuse late applications.

A copy of the email or other written communication of an extension must be attached to the assignment submission.

Refer to the Faculty Special consideration webpage or further details and to access application forms:
<http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html>

Late assignment

Assignments received after the due date will be subject to a penalty of 5% per day, including weekends. Assignments 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.

Appendix

Please visit the following URL: <http://www.infotech.monash.edu.au/units/appendix.html> for further information about:

- Continuous improvement
- Unit evaluations
- Communication, participation and feedback
- Library access
- Monash University Studies Online (MUSO)
- Plagiarism, cheating and collusion
- Register of counselling about plagiarism
- Non-discriminatory language
- Students with disability
- End of semester special consideration / deferred exams