SWEN90014 Masters Software Engineering Project

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2015, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 3 hours per week. Total Time Commitment: 200 hours
Prerequisites:	<table><tr><th>Subject</th><th>Study Period Commencement:</th><th>Credit Points:</th></tr><tr><td>SWEN30006 Software Modelling and Design</td><td>Semester 1, Semester 2</td><td>12.50</td></tr></table> **The following subject may be taken concurrently:** <table><tr><th>Subject</th><th>Study Period Commencement:</th><th>Credit Points:</th></tr><tr><td>ISYS90050 IT Project and Change Management</td><td>June, Semester 1, Semester 2</td><td>12.50</td></tr></table>
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	<table><tr><th>Subject</th><th>Study Period Commencement:</th><th>Credit Points:</th></tr><tr><td>SWEN40001 Advanced Software Engineering Project</td><td>Year Long</td><td>25</td></tr></table>
Core Participation Requirements:	<p>For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.</p> <p>It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: <a href="http://services.unimelb.edu.au/disability">http://services.unimelb.edu.au/disability</a></p>
Coordinator:	Dr Philip Dart
Contact:	Dr Philip Dart **philip.dart@unimelb.edu.au (mailto:philip.dart@unimelb.edu.au)**
Subject Overview:	**AIMS** This subject gives students in the Master of Engineering (Software) their first experience in analysing, designing, implementing, managing and delivering a small software engineering project. The aim of the subject is to give students an understanding of the major phases of software development, what each phase requires and how that phase fits into the overall engineering process. The subject also aims to give students an understanding of the importance of analysis, design, quality assurance activities and management activities within a software engineering process and to underpin the practical aspects of the management, analysis, design and validation subjects within the degree.

INDICATIVE CONTENT

Students will work in teams to conceive, analyse, design, implement and test a non-trivial software system for an external client. A key part of the project is for students to develop and manage a repeatable process in order to deliver a quality software product Workshops will explore the application of theory to your project and include selected topics drawn from: requirements analysis, design, implementation, testing and software project management relevant to the phase of the project that students are currently working on.

This subject has been integrated with the Skills Towards Employment Program (STEP) and contains activities that can assist in the completion of the Engineering Practice Hurdle (EPH).

Learning Outcomes:

INTENDED LEARNING OUTCOMES (ILO)

Having completed this unit the student is expected to:

1. Be able to design and manage a repeatable process to achieve specific project goals
2. Be able to apply software engineering principles and techniques to the development of a non-trivial software system
3. Work with external stakeholders to develop software systems to meet stakeholder needs
4. Integrate the knowledge gained in other subjects in the solution of a real world problem

Assessment:

Each project team of 4-5 students will be assessed based on the engineering artefacts produced during the project and on the deliverables produced at the end of the project. Specific timing of artefacts is dependent on the team's project plan, to be defined in coordination with their supervisor. 80% of each student's mark will be made up from a team mark. All team members will receive the same team mark, unless there are exceptional circumstances to warrant individual marking. A team's mark consists of the following components. The engineering analysis, design, release and process-related documentation, requiring approximately 65-70 hours (50%) and including: A project management component assessing the team's ability to manage a repeatable process An analysis and design component assessing the team's ability to apply software engineering principles and techniques to the development of a software system A test planning component assessing the team's ability to apply software engineering knowledge of validation and verification. 2. Final release of Software, in week 12, requiring approximately 35 – 40 hours, (30%) that assesses the team's ability to develop a non-trivial software system using software engineering principles and techniques 3. 20% of each student's mark will be based on their individual contribution to the project, assessed on the same quality criteria as points 2 and 3 A component of each submission addresses each of the Intended Learning Outcomes (ILOs). ILOs 1, 2, and 4 are specifically addressed by the final release (item 2)ILO 3 is specifically addressed via the project management component of item 1 All students are expected to participate in team meetings and workshops and contribute towards analysis and process related engineering documentation, coding and other team activities. Each student is expected to spend around 120 hours during the semester for project activities.

Prescribed Texts:

None

Breadth Options:

This subject is not available as a breadth subject.

Fees Information:

Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees

Generic Skills:

On completion of the subject the student should have the following skills:

- # Ability to apply knowledge of science and software engineering fundamentals
- # Ability to undertake problem identification, formulation, and solution
- # Proficiency in software engineering design
- # Ability to conduct an engineering project
- # Ability to communicate effectively, with the engineering team and with the community at large
- # Ability to manage information and documentation
- # Capacity for creativity and innovation
- # Understanding of professional and ethical responsibilities, and commitment to them
- # Ability to function effectively as an individual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member

	# Capacity for lifelong learning and professional development.
Notes:	**LEARNING AND TEACHING METHODS** The philosophy behind the subject is that students learn software engineering by ‘*doing it*’. The software engineering project provides a realistic learning environment typically with an external client that wants to use the software. Each student team is assigned a supervisor who acts as a mentor and guide throughout the project. Teams meet with their supervisor regularly to monitor progress and to discuss issues that arise during the project. The interaction between the student team and the client often raises issues that provide the topics for workshops and supervisor meetings. The subject comprises one lecture and one two-hour workshop per week. Lectures are used to coordinate the teams, deliver software engineering theory and practice relevant to the stage of the project reached, and to share experiences between the teams. Workshops are used to discuss issues raised within the project, translate theory to practice relevant to the stage of the project reached and to share experiences. **INDICATIVE KEY LEARNING RESOURCES** The subject is administered through the University’s Learning Management System (LMS). Templates for the various artefacts, guidelines on engineering processes and links to software engineering tools are available through the LMS. A standard development environment is provided that includes programming languages, libraries and development tools is provided to the students and is available on most engineering computers. **CAREERS / INDUSTRY LINKS** The software industry is expanding and along with it the demand for software engineers that are capable of the analytical and management skills beyond programming. The industry is also changing in the nature of the projects being undertaken with many software engineers now working in multidisciplinary project teams. The skills and experience gained in this subject are valued by employers and are often seen as a necessary grounding for a career in software and technology related industries. The subject uses external clients from outside of the Department and thus seeks to expose students to the types of environments in which software engineering projects take place. Guest lectures by are also given to highlight aspects of industrial practice and to expose students to the practical aspects of software engineering.
Related Majors/Minors/ Specialisations:	Master of Engineering (Software with Business) Master of Engineering (Software)