361AA Master of Software Systems Engineering

Year and Campus:	2015
CRICOS Code:	027897J
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Level:	Graduate/Postgraduate
Duration & Credit Points:	100 credit points taken over 12 months
Coordinator:	Dr Peter Schachte email: schachte@unimelb.edu.au
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Course Overview:	The Master of Software Systems Engineering (MSSE) allows graduates of computer science to study current computer science and software engineering topics at an advanced level. The course allows considerable flexibility and students select their own program from the available subjects. The technological skills presented in the MSSE are in high demand throughout the computing industry. The course covers a wide range of subjects enabling students to choose areas a variety of specialisations, for example: # Artificial Intelligence: understanding and building intelligent systems # Information Management: database and information retrieval systems and associated technologies for the management of data # Software Engineering: modern software engineering principles and methodologies
Learning Outcomes:	The Master of Software Systems Engineering is designed to: # Provide a solid foundation for students who want to develop their career in the broad field of computing # Provide a thorough understanding of key areas of computer science # Provide an introduction to research skills in a selected area # Improve computer related oral and written communication skills
Course Structure & Available Subjects:	**THE COURSE STRUCTURE BELOW ONLY APPLIES TO RE-ENROLLING STUDENTS WHO COMMENCED THEIR STUDIES PRIOR TO 2012.** # All students must pass SWEN90003 IT Project Management. # Students may take either seven subjects of 12.5 points each or five subjects of 12.5 points plus a small research project of 25 points (COMP90030 Minor Research Project). The research project involves an investigation and preparation of a substantial written report under the supervision of an academic staff member. Enrolment in this subject requires the approval of the course coordinator # Students must complete a minimum of six subjects at graduate level, including SWEN90003 IT Project Management, from those taught by the Department. # Special permission is required from the course coordinator to undertake a ISYS or SINF subject The recommended or standard course structures are listed below. When setting the timetable every effort will be made to avoid clashes between the times of classes associated with these sets of subjects. Students should be aware however, that if it proves to be impossible to achieve a timetable without clashes in these sets of subjects, the School reserves the right to modify course structures in order to eliminate the conflicts. Where the courses include elective subjects these should be chosen so that timetable clashes are avoided.
Subject Options:	SWEN90003 IT Project Management is compulsory

Students should note that not all subjects are offered every year.

Subject	Study Period Commencement:	Credit Points:
SWEN90002 Engineering for Internet Applications	Not offered 2015	12.50
SWEN90003 IT Project Management	Not offered 2015	12.50
COMP90005 Advanced Studies in Computing 6B	Summer Term, Semester 1, Semester 2	12.50
COMP90014 Algorithms for Functional Genomics	Semester 2	12.50
COMP90015 Distributed Systems	Semester 1, Semester 2	12.50
COMP90016 Computational Genomics	Semester 1	12.50
COMP90017 Sensor Networks and Applications	Not offered 2015	12.50
COMP90018 Mobile Computing Systems Programming	Semester 2	12.50
COMP90020 Distributed Algorithms	Semester 1	12.50
COMP90024 Cluster and Cloud Computing	Semester 1	12.50
COMP90025 Parallel and Multicore Computing	Semester 2	12.50
COMP90029 Advanced Studies in Computing 6A	Summer Term, Semester 1, Semester 2	12.50
COMP90030 Minor Research Project	Semester 1, Semester 2	25
COMP90042 Web Search and Text Analysis	Semester 1	12.50
COMP90043 Cryptography and Security	Semester 2	12.50
COMP90045 Programming Language Implementation	Not offered 2015	12.50
COMP90048 Declarative Programming	Semester 2	12.50
COMP90049 Knowledge Technologies	Semester 1, Semester 2	12.50
COMP90050 Advanced Database Systems	Semester 1	12.50
COMP90051 Statistical Machine Learning	Semester 2	12.50
COMP90053 Program Analysis and Transformation	Not offered 2015	12.50
COMP90054 Software Agents	Semester 2	12.50

In addition to these subjects, students may with the approval of the course coordinator take up to two of the following subjects from the Master of Telecommunications Engineering:

Subject	Study Period Commencement:	Credit Points:
ELEN90003 Network Design and Optimisation	Semester 2	12.50
ELEN90006 Internet Engineering	Semester 1	12.50

Entry Requirements:	**There is no further entry into this course.** **Academic Requirements** Academic entry requirements are either:

A four year degree with a substantial computing content with an average final year mark of at least 70% (University of Melbourne equivalent), **or**
A four year degree in a related discipline together with considerable industry experience in the field of computing or software engineering, **or**
Consideration will also be given to applicants with a three year degree in a computing-related discipline or equivalent and who have completed the Postgraduate Diploma in Science (Computer Science) at the University of Melbourne with a mark of 75% or higher.

Computer Background

An applicant's computing background should include solid programming experience as well as a good knowledge of:

Data structures and algorithms for sorting, searching and graph manipulation
Software development principles and tools
Software design including object-oriented design

An applicant's computing background should also include good knowledge of several specialised areas, such as: artificial intelligence; computability and logic; operating systems; databases; human-computer interaction; computer networks; compilers; computer graphics and software engineering.

An applicant must have studied mathematics or statistics at the equivalent of a second year University level

Language Requirements

Please check the **University English language requirements (http:// futurestudents.unimelb.edu.au/admissions/entry-requirements/language-requirements)**

The **Melbourne School of Engineering's English Language alternative (http:// futurestudents.unimelb.edu.au/admissions/entry-requirements/language-requirements/ graduate-toefl-ielts)** may affect the duration and cost of your course

Core Participation Requirements:	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. 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: http:// services.unimelb.edu.au/disability
Graduate Attributes:	The MSSE delivers on the University graduate attributes
Professional Accreditation:	The program is accredited by the Australian Computer Society (ACS)
Generic Skills:	# Ability to undertake problem identification, formulation, and solution # Ability to utilise a systems approach to complex problems and to design and operational performance # Capacity for creativity and innovation # Ability to manage information and documentation