

## Master of Engineering (Software)

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| <b>Year and Campus:</b>                    | 2013   |
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| <b>Contact:</b>                            | <p>Melbourne School of Engineering<br/>Ground Floor, Old Engineering (Building 173)</p> <p>Current Students:<br/>Email: <a href="mailto:13MELB@unimelb.edu.au">13MELB@unimelb.edu.au</a> (<a href="mailto:13MELB@unimelb.edu.au">mailto:13MELB@unimelb.edu.au</a>)<br/>Phone: 13 MELB (13 6352)<br/>+61 3 9035 5511</p> <p>Prospective Students:<br/>Email: <a href="mailto:eng-info@unimelb.edu.au">eng-info@unimelb.edu.au</a> (<a href="mailto:eng-info@unimelb.edu.au">mailto:eng-info@unimelb.edu.au</a>)<br/>Phone: + 61 3 8344 6944</p>   |
| <b>Overview:</b>                           | <p>Software engineers combine an understanding of computer science, design, engineering management, mathematics and psychology to manage the development, maintenance and production of large scale software systems.</p> <p>This specialisation focuses on team-based projects, in which students must conceive, design, implement and operate software engineering solutions. Students develop technical skills and the ability to apply engineering principles to solving real-world problems.</p> <p>A year-long industry project provides the opportunity to work closely with ICT professionals, and many graduates find roles in this field, in addition to those in other service-oriented and software development areas.</p>   |
| <b>Objectives:</b>                         | To produce graduates who are both skilled in software engineering principles and have the ability to apply them to complex, open-ended engineering tasks and problems.   |
| <b>Structure &amp; Available Subjects:</b> | <p>The Master of Engineering (Software) consists of of 300 points of study - 162.5 points core plus 137.5 points elective subjects as listed below.</p> <p>Advanced standing will be awarded for equivalent subjects taken in prior study to applicants on the following basis:</p> <ul style="list-style-type: none"> <li># a maximum of 100 points for applicants with a 4 year Bachelor of Engineering or equivalent.</li> <li># a maximum of 100 points for applicants with a 3 year undergraduate degree. Students entering with a three year bachelor degree must complete at least 200 points of study within the Masters of Engineering. In cases where applicants have completed the equivalent of more than 100 points of core masters subjects, discipline specific electives must be taken to fulfill the 200 minimum masters study requirement.</li> </ul> <p>Note: applicants from the University of Melbourne with:</p> <ul style="list-style-type: none"> <li># An appropriate "Engineering System" major will receive 100 points of advanced standing. Applicants who have completed more than 100 points of core subjects in their undergraduate degree will obtain exemption for the cores taken but will need to replace the points in excess of 100 points with elective subjects.</li> <li># Engineering breadth sequences (including those in the Bachelor of Commerce) will receive advanced standing to a maximum of 100 points.</li> </ul> |
| <b>Subject Options:</b>                    | <p>Total 300 points Students must complete all 300 points of subjects, including all core subjects, or have advanced standing or exemption.</p> <p>The core and elective subjects are those listed below. The order of subjects below is one way of progressing through the course - students who meet subject requisites may tailor their individual study plan to take into account advanced standing and their preferred study load. Students plan their study on-line, however Melbourne School of Engineering course advisors are available to assist students with individual study plans.</p> <p>Students must complete the following in the Master of Engineering (Software):</p> <ul style="list-style-type: none"> <li># 162.5 credit points of core subjects</li> </ul>   |

- # 37.5 credit points of computer science and software engineering electives
- # 50 credit points of computer science and software engineering advanced electives
- # 25 points of software engineering advanced electives
- # 25 points of approved electives

according to the lists below.

### **Suggested first 100 points:**

Suggested study plan for the first 100 points:

- # 75 points Core
- # 25 points computer science and software engineering electives from the list below

Core (75 points)

| Subject  | Study Period Commencement: | Credit Points: |
|--|----------------------------|----------------|
| ENGR90021 Engineering Communication            | Not offered 2013           | 12.50          |
| COMP90038 Algorithms and Complexity            | Not offered 2013           | 12.50          |
| COMP90041 Programming and Software Development | Not offered 2013           | 12.50          |
| COMP20004 Discrete Structures                  | Not offered 2013           | 12.50          |
| ISYS90050 IT Project and Change Management     | Not offered 2013           | 12.50          |
| COMP20005 Engineering Computation              | Semester 1                 | 12.50          |

### **Suggested second 100 points:**

Suggested study plan for the second 100 points:

- # 62.5 points Core
- # 25 points computer science and software engineering advanced electives
- # 12.5 points computer science and software engineering electives

Core (62.5 points)

| Subject  | Study Period Commencement: | Credit Points: |
|--|----------------------------|----------------|
| SWEN90014 Masters Software Engineering Project | Not offered 2013           | 12.50          |
| SWEN40004 Modelling Complex Software Systems   | Semester 1                 | 12.50          |
| SWEN90006 Software Engineering Methods         | Not offered 2013           | 12.50          |
| SWEN30006 Software Modelling and Design        | Not offered 2013           | 12.50          |
| SWEN90009 Software Requirements Analysis       | Not offered 2013           | 12.50          |

### **Suggested third 100 points:**

Suggested study plan for the third 100 points:

- # 25 points Core
- # 25 points advanced software engineering electives
- # 25 points advanced computer science and software engineering electives
- # 25 points approved electives

from the lists below

Core (25 points)

| Subject                                     | Study Period Commencement: | Credit Points: |
|---|----------------------------|----------------|
| SWEN90013 Masters Advanced Software Project | Not offered 2013           | 25             |

**Computer Science and Software Engineering Electives**

Total 25 points

| Subject  | Study Period Commencement: | Credit Points: |
|--|----------------------------|----------------|
| COMP30017 Operating Systems and Network Services | Not offered 2013           | 12.50          |
| COMP30020 Declarative Programming                | Not offered 2013           | 12.50          |
| COMP30019 Graphics and Interaction               | Semester 2                 | 12.50          |
| COMP30021 Theoretical Computer Science           | Not offered 2013           | 12.50          |
| COMP30018 Knowledge Technologies                 | Not offered 2013           | 12.50          |

**Software Engineering Advanced Electives**

Total 25 points

| Subject                                      | Study Period Commencement: | Credit Points: |
|--|----------------------------|----------------|
| SWEN90010 High Integrity Systems Engineering | Not offered 2013           | 12.50          |
| COMP90043 Cryptography and Security          | Not offered 2013           | 12.50          |
| SWEN90007 Software Design and Architecture   | Not offered 2013           | 12.50          |

**Computer Science and Software Engineering Advanced Electives**

Total 50 points

| Subject  | Study Period Commencement: | Credit Points: |
|--|----------------------------|----------------|
| COMP90015 Distributed Systems                  | Not offered 2013           | 12.50          |
| COMP90016 Computational Genomics               | Not offered 2013           | 12.50          |
| COMP90050 Advanced Database Systems            | Not offered 2013           | 12.50          |
| COMP90045 Programming Language Implementation  | Not offered 2013           | 12.50          |
| COMP90053 Program Analysis and Transformation  | Not offered 2013           | 12.50          |
| COMP90042 Web Search and Text Analysis         | Not offered 2013           | 12.50          |
| COMP90024 Cluster and Cloud Computing          | Semester 2                 | 12.50          |
| COMP90049 Knowledge Technologies               | Not offered 2013           | 12.50          |
| COMP90046 Constraint Programming               | Not offered 2013           | 12.50          |
| COMP90044 Research Methods                     | Not offered 2013           | 12.50          |
| COMP90014 Algorithms for Functional Genomics   | Not offered 2013           | 12.50          |
| COMP90054 Software Agents                      | Not offered 2013           | 12.50          |
| COMP90018 Mobile Computing Systems Programming | Not offered 2013           | 12.50          |
| COMP90017 Sensor Networks and Applications     | Not offered 2013           | 12.50          |
| COMP90020 Distributed Algorithms               | Not offered 2013           | 12.50          |
| COMP90025 Parallel and Multicore Computing     | Not offered 2013           | 12.50          |
| COMP90048 Declarative Programming              | Not offered 2013           | 12.50          |

**Approved Electives**

Total 25 points

Any Software Engineering Advanced Elective or Computer Science and Software Advanced Elective from the above lists or the subject listed below. Other subjects may be added with approval from the course co-ordinator.

| Subject                                | Study Period Commencement: | Credit Points: |
|--|----------------------------|----------------|
| ENGR90026 Engineering Entrepreneurship | Not offered 2013           | 12.50          |

**Links to further information:**

[http://www.eng.unimelb.edu.au/Postgrad/MEng/me\\_software.html](http://www.eng.unimelb.edu.au/Postgrad/MEng/me_software.html)

**Related Course(s):**

Master of Engineering