

## 781AA Master of Engineering in Distributed Computing

<b>Year and Campus:</b>	2013 - Parkville
<b>CRICOS Code:</b>	054324M
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Level:</b>	Graduate/Postgraduate
<b>Duration &amp; Credit Points:</b>	200 credit points taken over 24 months full time. This course is available as full or part time.
<b>Coordinator:</b>	Professor Rajkumar Buyya
<b>Contact:</b>	<p>Melbourne School of Engineering Ground Floor, Old Engineering (Building 173)</p> <p>Current Students: Email: <a href="mailto:13MELB@unimelb.edu.au">13MELB@unimelb.edu.au</a> (mailto:13MELB@unimelb.edu.au) Phone: 13 MELB (13 6352) +61 3 9035 5511</p> <p>Prospective Students: Email: <a href="mailto:eng-info@unimelb.edu.au">eng-info@unimelb.edu.au</a> (mailto:eng-info@unimelb.edu.au) Phone: + 61 3 8344 6944</p>
<b>Course Overview:</b>	<p>The Master of Engineering in Distributed Computing (MEDC) addresses demand from the emerging information and communication technology (ICT) market with a knowledge emphasis on the use of industry standard and internet-based distributed computing technologies in the development of networked enterprise systems and their applications.</p> <p>The key aspects the program are:</p> <ul style="list-style-type: none"> <li># It has been designed to provide expertise for developing service-oriented, enterprise computing systems and applications that need to operate in wired/wireless network environments. These enterprise systems can scale from a single to multiple organisations</li> <li># It promotes the utilisation of industry standard distributed computing technologies such as J2EE and .NET</li> <li># About half of the course focuses on highly specialised distributed computing topics such as: distributed systems, cluster and grid computing, distributed algorithms, mobile systems programming, sensor networks and Web services</li> <li># It includes a compulsory team-based project work that emphasises the design and development of distributed computing technologies and their application in e-Science and e-Business areas</li> </ul>
<b>Objectives:</b>	<p>The program is designed to:</p> <ul style="list-style-type: none"> <li># Provide expertise for developing service-oriented, enterprise computing systems and applications that need to operate in wired/wireless network environments. These enterprise systems can scale from a single to multiple organisations</li> <li># Promote the utilisation of industry standard distributed computing technologies such as J2EE and .NET</li> <li># Focus on highly specialised distributed computing topics such as: distributed systems, cluster and grid computing, distributed algorithms, mobile systems programming, sensor networks and web services</li> </ul>
<b>Course Structure &amp; Available Subjects:</b>	Please see course advisor in the School of Engineering for subject selection.
<b>Subject Options:</b>	<p>Group A subjects (foundation studies) consist of subjects which bring students up-to-date with advanced computer science concepts, techniques and tools.</p> <p>Group B subjects offer advanced study in distributed computing technologies and its applications, and includes a number of new and existing subjects. MEDC students should study at least four subjects from subgroup B2 in addition to the compulsory subject from subgroup B1 (COMP90015).</p>

Group C subjects offer an opportunity for students to carry out a solid practice-oriented or research-oriented project in distributed computing. Selection of projects will be on an individual or team basis, depending on student background and availability of supervision.

With permission from the course coordinator, subjects in Group A and B may be substituted with other suitable studies.

# Entry Level 1: 200 points comprising of 4 subjects from Group A, 10 subjects from Group B and 1 subject from Group C

# Entry Level 2: 150 points comprising of 10 subjects from Group B and 1 subject from Group C

# Entry Level 3: 200 points comprising of 6 subjects from Group B and 1 subject from Group C

NB Some subjects are offered in alternative years.

#### **GROUP A Foundation subjects:**

50 points. Compulsory for *Entry Level 1* students

Subject	Study Period Commencement:	Credit Points:
COMP90041 Programming and Software Development	Not offered 2013	12.50
COMP90038 Algorithms and Complexity	Not offered 2013	12.50
COMP90007 Internet Technologies	Not offered 2013	12.50
COMP30017 Operating Systems and Network Services	Not offered 2013	12.50

#### **GROUP B subjects**

*Entry Level 1 and 2* - 125 points

*Entry Level 3* - 75 points

**B1:** Core 25 points:

Subject	Study Period Commencement:	Credit Points:
COMP90015 Distributed Systems	Not offered 2013	12.50
SWEN90003 IT Project Management	Not offered 2013	12.50

**B2:** Strongly Recommended Electives:

Subject	Study Period Commencement:	Credit Points:
SWEN90002 Engineering for Internet Applications	Not offered 2013	12.50
COMP90024 Cluster and Cloud Computing	Semester 2	12.50
COMP90017 Sensor Networks and Applications	Not offered 2013	12.50
COMP90020 Distributed Algorithms	Not offered 2013	12.50
COMP90018 Mobile Computing Systems Programming	Not offered 2013	12.50
COMP90025 Parallel and Multicore Computing	Not offered 2013	12.50

**B3:** Electives:

Subject	Study Period Commencement:	Credit Points:
COMP90016 Computational Genomics	Not offered 2013	12.50

COMP90048 Declarative Programming	Not offered 2013	12.50
COMP90049 Knowledge Technologies	Not offered 2013	12.50
COMP90043 Cryptography and Security	Not offered 2013	12.50
COMP90051 Statistical and Evolutionary Learning	Not offered 2013	12.50
COMP90050 Advanced Database Systems	Not offered 2013	12.50
COMP90042 Web Search and Text Analysis	Not offered 2013	12.50
COMP90043 Cryptography and Security	Not offered 2013	12.50
COMP90045 Programming Language Implementation	Not offered 2013	12.50
COMP90053 Program Analysis and Transformation	Not offered 2013	12.50
COMP90046 Constraint Programming	Not offered 2013	12.50
COMP90054 Software Agents	Not offered 2013	12.50

**GROUP C core:**

25 points

Subject	Study Period Commencement:	Credit Points:
COMP90019 Distributed Computing Project	Semester 1	25

**Entry Requirements:****There is no further entry into this course.**

The MEDC program offers three different entry levels which are determined by academic background and work experience in computing.

**Entry Level 1 (200 points)**

A three-year undergraduate degree in Science or Engineering including mathematics and at least one programming subject with a final year grade average of at least 65% and two years of relevant documented work experience

**or**

A four-year degree in Science or Engineering including mathematics and at least one programming subject with a final year grade average of at least 65%.

**Entry Level 2 (150 points)**

A three-year undergraduate degree in Computer Science, Computer Engineering, Software Engineering, Information Technology or related discipline with a final year average grade of at least 65% and at least two years of relevant documented work experience

**or**

A four-year undergraduate degree in Computer Science, Computer Engineering, Software Engineering, Information Technology or related discipline with a final year average grade of at least 65%.

**Entry Level 3 (100 points)**

A three-year undergraduate degree in Computer Science, Computer Engineering, Software Engineering, Information Technology or related discipline with a final year average grade of at least 65% and studies in parallel and distributed computing related subjects at an advanced level and two years of relevant documented work experience

**or**

A four-year undergraduate degree in Computer Science, Computer Engineering, Software Engineering, Information Technology or related discipline with a final year average grade of at least 65% and studies in parallel and distributed computing related subjects at an advanced undergraduate level

**Language Requirements**

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

	<p>The <b>Melbourne School of Engineering's English Language alternative</b> (<a href="http://futurestudents.unimelb.edu.au/admissions/entry-requirements/language-requirements/graduate-toefl-ielts">http://futurestudents.unimelb.edu.au/admissions/entry-requirements/language-requirements/graduate-toefl-ielts</a>) may affect the duration and cost of your course</p> <p>.</p>
<p><b>Core Participation Requirements:</b></p>	<p>&lt;p&gt;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.&lt;/p&gt; &lt;p&gt;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: &lt;a href="http://services.unimelb.edu.au/disability"&gt;http://services.unimelb.edu.au/disability&lt;/a&gt;&lt;/p&gt;</p>
<p><b>Graduate Attributes:</b></p>	<p>Graduate Attributes: 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</p>
<p><b>Generic Skills:</b></p>	<p>An Engineering graduate has a unique skill set comprising a blend of technical, business and interpersonal skills. Upon completion of the Bachelor of Engineering at the University of Melbourne, students will have strong analytical skills, the ability to lead teams and projects and the creativity to look at problems in a way that provides innovative solutions. Our graduates are known for their high standards and professionalism, their understanding of global issues and their outstanding communication skills. For details, see "Objectives".</p>