

## PC-ENG Postgraduate Certificate in Engineering

<b>Year and Campus:</b>	2012 - Parkville
<b>CRICOS Code:</b>	045960B
<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>	50 credit points taken over 6 months full time. This course is available as full or part time.
<b>Coordinator:</b>	Prof. Jamie Evans
<b>Contact:</b>	<p><b>Melbourne School of Engineering</b> 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>	The Postgraduate Certificate in Engineering is used to qualify students for further graduate study in a related area to their previous Engineering degree and to provide foundation studies for students who have an Engineering degree and who want to expand or update their knowledge. It is particularly useful for students returning to tertiary study after time away from an academic environment
<b>Objectives:</b>	<p>This course has as its objectives that graduates should:</p> <ul style="list-style-type: none"> <li># Have a sound fundamental understanding of the scientific principles underlying technology</li> <li># Possess analytical, problem-solving and, where relevant, design skills, including those appropriate for sustainable development</li> <li># Have verbal and written communication skills that enable them to make a meaningful contribution to the changes facing our society; and</li> <li># Understand the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development</li> </ul>
<b>Course Structure &amp; Available Subjects:</b>	Students choose any four subjects (50 credit points) from the list of postgraduate subjects offered in Specialised Masters courses within the Melbourne School of Engineering provided they have the pre-requisites to do so. Students seeking subsequent entry to graduate programs offered by the Melbourne School of Engineering should seek appropriate course advice to ensure that they will have the required skills and knowledge at the completion of the program
<b>Majors/Minors/ Specialisations</b>	<p>Discipline areas and related subjects within the Postgraduate Certificate in Engineering</p> <p>Students may choose any four subjects from the list of postgraduate subjects offered within the following discipline areas:</p> <ul style="list-style-type: none"> <li># Engineering Management and Project Management</li> <li># Environmental Engineering</li> <li># Information and Communication Technology</li> <li># Biomedical Engineering</li> <li># Geographic Information Systems and Technology</li> </ul>
<b>Subject Options:</b>	<p>Disciplines and subjects available in the Postgraduate Certificate in Engineering</p> <p><b>Engineering Management and Project Management</b></p> <p>The following subjects are available in the Postgraduate Certificate in Engineering in the engineering management and project management discipline</p>

Subject	Study Period Commencement:	Credit Points:
ENGM90007 Project Management Practices	Semester 1	12.50
ENGM90010 Management of Technological Enterprises	Semester 1	12.50
ENGM90006 Engineering Contracts and Procurement	Semester 2	12.50

### Environmental Engineering

The following subjects are available in the Postgraduate Certificate in Engineering in the environmental engineering discipline

Subject	Study Period Commencement:	Credit Points:
CVEN90017 Earthquake Resistant Design of Buildings	Semester 1	12.50
CVEN90024 High Rise Structures	Semester 1	12.50
CVEN90026 Extreme Loading of Structures	Semester 1	12.50
ENEN90034 Hydrological Processes	Semester 1	12.50
ENGR90010 Mineral Economics	Not offered 2012	12.50
ENGR90011 Mineral Processing and Waste Management	Not offered 2012	12.50
ENGR90013 Surface Mine Planning and Mining Methods	Not offered 2012	12.50
ENGR90012 Soil Rock and Tailings Mechanics	Not offered 2012	12.50
ENEN90006 Solid Wastes to Sustainable Resources	Semester 1	12.50
CVEN90027 Geotechnical Applications	Semester 2	12.50
CVEN90016 Concrete Design and Technology	Semester 2	12.50
ENGR90014 Underground Mining and Planning Methods	Not offered 2012	12.50
CVEN90018 Structural Dynamics and Modelling	Semester 2	12.50
CVEN90019 Sustainable Water Resources Systems	Semester 2	12.50
ENGR90015 Mining Geotechnics and Mine Design	Not offered 2012	12.50
ENGR90016 Mine Dewatering, Ventilation and Power	Not offered 2012	12.50
CVEN90035 Structural Theory and Design 3	Semester 2	12.50
ENGR90017 Risk and Safety Management	Not offered 2012	12.50
ENEN90025 Design of Environmental Systems	Not offered 2012	12.50
ENEN90005 Environmental Management ISO 14000	Semester 2	12.50
ENEN90011 Energy Efficiency Technology	Semester 2	12.50
ENEN90030 Contaminant Hydrogeology	Semester 2	12.50
CVEN90043 Sustainable Infrastructure Systems	Semester 1	12.50
ENEN90031 Quantitative Environmental Modelling	Semester 1	12.50
ENEN90028 Monitoring Environmental Impacts	Semester 2	12.50
ENEN90032 Environmental Analysis Tools	Semester 2	12.50

CVEN90019 Sustainable Water Resources Systems	Semester 2	12.50
ENEN90005 Environmental Management ISO 14000	Semester 2	12.50
ENEN90030 Contaminant Hydrogeology	Semester 2	12.50

### Information and Communication Technology

The following subjects are available in the Postgraduate Certificate in Engineering in the Information and Communication Technology disciplines of Electrical and Electronic Engineering and in Computer Science and Software Engineering

Subject	Study Period Commencement:	Credit Points:
BMEN90002 Neural Information Processing	Semester 2	12.50
BMEN90003 Clinical Engineering	Semester 2	12.50
ELEN90006 Internet Engineering	Semester 1	12.50
ELEN90014 Multimedia Content Delivery	Semester 1	12.50
ELEN90008 Signalling and Network Management	Semester 2	12.50
ELEN90016 Broadband Access Networking and Design	Semester 2	12.50
ELEN90051 Advanced Communication Systems	Semester 1	12.50
ELEN90052 Advanced Signal Processing	Semester 1	12.50
ELEN90054 Probability and Random Models	Semester 1	12.50
ELEN90057 Communication Systems	Semester 2	12.50
ELEN90059 Lightwave Systems	Semester 1	12.50
ELEN90061 Communication Networks	Semester 2	12.50
ELEN90062 High Speed Electronics	Semester 2	12.50
ELEN90064 Advanced Control Systems	Semester 2	12.50
COMP90016 Computational Genomics	Semester 1	12.50
COMP90024 Cluster and Grid Computing	Semester 1	12.50
COMP90041 Programming and Software Development	Semester 1, Semester 2	12.50
COMP90038 Algorithms and Complexity	Semester 1, Semester 2	12.50
COMP90007 Internet Technologies	Semester 1, Semester 2	12.50
COMP90015 Distributed Systems	Semester 1, Semester 2	12.50
ELEN90007 Wireless Communication Systems	Semester 2	12.50
SWEN90002 Engineering for Internet Applications	Semester 2	12.50
SWEN90003 IT Project Management	Semester 1	12.50
COMP90014 Algorithms for Functional Genomics	Semester 2	12.50
ELEN90003 Network Design and Optimisation	Semester 2	12.50
ELEN90013 Mobile and Wireless Networks and Design	Semester 1	12.50

ELEN90034 Optical Networking and Design

Semester 2

12.50

**Biomedical Engineering**

The following subjects are available in the Postgraduate Certificate in Engineering in the Biomedical Engineering discipline (further subjects will be offered from 2011)

Subject	Study Period Commencement:	Credit Points:
COMP90016 Computational Genomics	Semester 1	12.50
BMEN90002 Neural Information Processing	Semester 2	12.50
COMP90014 Algorithms for Functional Genomics	Semester 2	12.50
BMEN90003 Clinical Engineering	Semester 2	12.50
BMEN90011 Tissue Engineering & Stem Cells	Semester 2	12.50
BMEN90007 Anatomy & Physiology for Engineers	Not offered 2012	12.50

**Geographic Information Systems and Technology**

The following subjects are available in the Postgraduate Certificate in Engineering in the Geographic Information Systems and Technology discipline (further subjects will be offered from 2011)

Subject	Study Period Commencement:	Credit Points:
GEOM90008 Foundations of Spatial Information	Semester 1	12.50
GEOM90007 Spatial Visualisation	Winter Term	12.50
GEOM90018 Spatial Databases	Semester 1	12.50
GEOM90029 Spatial Visualisation on Line	Not offered 2012	12.50
GEOM90015 Spatial Data Infrastructure	Semester 2	12.50
GEOM90005 Remote Sensing	Semester 2	12.50
GEOM90006 Spatial Analysis	Semester 2	12.50
SWEN90003 IT Project Management	Semester 1	12.50
CVEN90045 Engineering Project Implementation	Semester 2	12.50

**Entry Requirements:****Entry Requirements**

Three year degree in engineering, science or related discipline with an average mark of 65% or greater.

**Language Requirements**

International students and students whose prior qualifications are from a university overseas where English is not the official language of instruction and examination need to supply proof of academic English language competency. Proof acceptable to the University includes:

Original evidence of an English Language test score at a sitting within the last 24 months of either -

TOEFL - at least 577 and a TWE of at least 4.5 (paper based) or a TOEFL of at least 233 with an Essay Rating of at least 4.5 (computer based)

or

IELTS - at least 6.5. (A minimum band score of 6 is required in the Academic Writing module).

Entry under a slightly lower Engineering alternative\* English Language entry requirement is available as follows:

TOEFL - at least 550, with a TWE of 4 or the computer based TOEFL of at least 213 with an Essay Rating Score of at least 4 and agreeing in writing to undertake and pass an ESL subject in the first semester of study at The University of Melbourne

or

	<p>IELTS - at least 6 and agreeing in writing to undertake and pass an ESL subject in the first semester of study at The University of Melbourne.</p> <p>* The Melbourne School of Engineering's English Language alternative may affect the duration and cost of your course.</p> <p>For graduate students the University's English language entry requirements are set out at: <a href="http://www.futurestudents.unimelb.edu.au/admissions/entry-requirements/language-requirements/graduate-toefl-ielts">http://www.futurestudents.unimelb.edu.au/admissions/entry-requirements/language-requirements/graduate-toefl-ielts</a> (<a href="http://www.futurestudents.unimelb.edu.au/admissions/entry-requirements/language-requirements/graduate-toefl-ielts">http://www.futurestudents.unimelb.edu.au/admissions/entry-requirements/language-requirements/graduate-toefl-ielts</a>)</p>
<b>Core Participation Requirements:</b>	<p>For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Commonwealth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: <a href="http://www.services.unimelb.edu.au/disability/">http://www.services.unimelb.edu.au/disability/</a></p>
<b>Further Study:</b>	<p>Successful completion of the Postgraduate Certificate in Engineering may allow you to enrol in some Masters by Coursework programs within the Melbourne School of Engineering</p>
<b>Graduate Attributes:</b>	<p>Demonstrate some knowledge and understanding of selected areas of a specialisation or across discipline areas; Access and appreciate national and international debates in their specialised areas of study or across discipline areas; and Qualify for further graduate study in related areas to the area of specialisation.</p>
<b>Professional Accreditation:</b>	<p>None</p>
<b>Generic Skills:</b>	<p>On completion of this course students should have:</p> <ul style="list-style-type: none"> <li># Strong analytical skills</li> <li># Practical ingenuity and creativity</li> <li># Understanding of global issues</li> <li># Communication Creativity; and</li> <li># Lifelong learners</li> </ul>
<b>Links to further information:</b>	<p><a href="http://www.eng.unimelb.edu.au/Postgrad/">http://www.eng.unimelb.edu.au/Postgrad/</a></p>
<b>Notes:</b>	<p>None</p>