

# MCEN40003 Quality Engineering

<b>Credit Points:</b>	12.50						
<b>Level:</b>	4 (Undergraduate)						
<b>Dates &amp; Locations:</b>	2011, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus. On campus only						
<b>Time Commitment:</b>	Contact Hours: Thirty hours of lectures and 18 hours of tutorial/practice class work Total Time Commitment: 120 hours						
<b>Prerequisites:</b>	The prerequisites for this subject are: <table border="1" data-bbox="387 600 1485 779"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MAST20029 Engineering Mathematics</td> <td>Summer Term, Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>OR</p> 431-202 Engineering Analysis B (prior to 2009)	Subject	Study Period Commencement:	Credit Points:	MAST20029 Engineering Mathematics	Summer Term, Semester 1, Semester 2	12.50
Subject	Study Period Commencement:	Credit Points:					
MAST20029 Engineering Mathematics	Summer Term, Semester 1, Semester 2	12.50					
<b>Corequisites:</b>	None						
<b>Recommended Background Knowledge:</b>	None						
<b>Non Allowed Subjects:</b>	<table border="1" data-bbox="387 1043 1485 1193"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MGMT30010 Quality and Business Process Management</td> <td>Not offered 2011</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	MGMT30010 Quality and Business Process Management	Not offered 2011	12.50
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MGMT30010 Quality and Business Process Management	Not offered 2011	12.50					
<b>Core Participation Requirements:</b>	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 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>						
<b>Coordinator:</b>	Dr Alan Smith						
<b>Contact:</b>	<a href="mailto:ajrs@unimelb.edu.au">ajrs@unimelb.edu.au</a> ( <a href="mailto:ajrs@unimelb.edu.au">mailto:ajrs@unimelb.edu.au</a> )						
<b>Subject Overview:</b>	Topics covered may include total quality management, productivity and cost relationships; quality systems and their components, including international standards; interaction between quality and design functions; alternate systems approaches, including leading international concepts; quality control: the control function in quality; theory of sampling; the operating characteristic curve; the use of statistical distributions; sampling scheme design and analysis; quality improvement: process variability - measures and interaction with design; process capability and improvement studies; control charting; state of statistical stability; computerisation of process monitoring; cumulative sum techniques for quality studies; experimental design for quality improvement.						
<b>Objectives:</b>	Upon completion of this subject, students should be able to - <ul style="list-style-type: none"> <li># Understand what constitutes a quality system (both generally and with respect to international standards);</li> <li># Develop strategies for implementing a quality system and its components;</li> </ul>						

	<ul style="list-style-type: none"> <li># Identify quality costs and use them for the economic analysis of quality projects;</li> <li># Understand and quantify the relationships between process capability and tolerances;</li> <li># Design a 'single' attribute or variables sampling scheme to meet stated requirements, analyse and assess all common types of sampling schemes;</li> <li># Design, analyse and interpret 'Shewhart-type' process control charts and CUSUMS for process control.</li> </ul>
<b>Assessment:</b>	Assessment includes - One 3-hour examination at the end of semester (70%)3 assignments and 1 lab report not exceeding 2200 words each excluding appendices, computations, diagrams, tables and computer output due throughout the semester (30%).
<b>Prescribed Texts:</b>	None
<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<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>Generic Skills:</b>	<ul style="list-style-type: none"> <li># Ability to communicate effectively, not only with engineers but also with the community at large</li> <li># In-depth technical competence in at least one engineering discipline</li> <li># Ability to undertake problem identification, formulation and solution</li> <li># Ability to utilise a systems approach to design and operational performance</li> <li># Ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member</li> <li># Understanding of the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development</li> <li># Understanding of professional and ethical responsibilities and commitment to them</li> <li># Expectation of the need to undertake lifelong learning, capacity to do so</li> <li># Capacity for independent critical thought, rational inquiry and self-directed learning</li> <li># openness to new ideas and unconventional critiques of received wisdom</li> </ul>
<b>Related Course(s):</b>	Bachelor of Engineering (EngineeringManagement)Mechanical&Manufacturing Bachelor of Engineering (Mechanical &Manufacturing)& Bachelor of Science Bachelor of Engineering (Mechanical &Manufacturing)/Bachelor of Commerce Bachelor of Engineering (Mechanical and Manufacturing Engineering) Bachelor of Engineering (Mechatronics) and Bachelor of Computer Science
<b>Related Majors/Minors/ Specialisations:</b>	B-ENG Mechanical Engineering stream