

436-415 Quality Engineering

Credit Points:	12.50
Level:	4 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 2, - Taught on campus. On campus only
Time Commitment:	Contact Hours: Thirty lectures and 18 hours of tutorial/practice class work Total Time Commitment: 120 hours
Prerequisites:	620-370 Statistics for Mechanical Engineers; or for Bachelor of Engineering/Bachelor of Commerce (955-AM) students: 316-130 Quantitative Methods 1; or for Bachelor of Engineering (Engineering Management) Students (680-AF): 431202 Engineering Analysis B.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	<p>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.</p> <p>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</p>
Coordinator:	Dr Alan John Russell Smith
Subject Overview:	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.
Objectives:	Upon completion of this subject, students should be able to understand what constitutes a quality system (both generally and with respect to international standards); develop strategies for implementing a quality system and its components; identify quality costs and use them for the economic analysis of quality projects; understand and quantify the relationships between process capability and tolerances; design a 'single' attribute or variables sampling scheme to meet stated requirements, analyse and assess all common types of sampling schemes; design, analyse and interpret 'Shewhart-type' process control charts and CUSUMS for process control.
Assessment:	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%).
Prescribed Texts:	None

Recommended Texts:	Information Not Available
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<ul style="list-style-type: none"> # ability to communicate effectively, not only with engineers but also with the community at large # in-depth technical competence in at least one engineering discipline # ability to undertake problem identification, formulation and solution # ability to utilise a systems approach to design and operational performance # 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 # understanding of the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development # understanding of professional and ethical responsibilities and commitment to them # expectation of the need to undertake lifelong learning, capacity to do so # capacity for independent critical thought, rational inquiry and self-directed learning # openness to new ideas and unconventional critiques of received wisdom
Notes:	MCEN40003 Quality Engineering was formerly 436-415 Quality Engineering
Related Course(s):	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 Graduate Diploma in Engineering (Engineering Management)