620-616 Optimisation for Industry

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 1, - Taught on campus. On-campus.
Time Commitment:	Contact Hours: 36 hours comprising 2 one-hour lectures per week and 1 one-hour computer lab/practical class per week. Total Time Commitment: 3 contact hours and 7 hours private study per week.
Prerequisites:	None.
Corequisites:	None.
Recommended Background Knowledge:	It is recommended that students have completed a third year subject in linear and non-linear programming (equivalent to 620-362 [2008] Applied Operations Research).
Non Allowed Subjects:	None.
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact upon their participation are encouraged todiscuss this with the subject coordinator and the Disability Liaison Unit.
Coordinator:	Dr Heng Soon Gan
Subject Overview:	The use of mathematical optimisation is widespread in business, where it is a key management tool for planning and operations. It is also required in many industrial processes and is useful to government and community organizations. This subject will expose students to operations research techniques as used in industry. A heavy emphasis will be placed on the modelling process that turns an industrial problem into a mathematical formulation. The focus will then be on how to solve the resulting mathematical problem. Elementary linear programming and non-linear programming techniques will be reviewed, leading to an introductory treatment of integer programming techniques.
Objectives:	After completing this subject students should: - have learned how basic techniques in operations research are applied in industry; - understand how to turn an industrial problem into a mathematical formulation; - know how to solve important mathematical optimisation problems arising in industrial framework; - gain the ability to pursue further studies in this and related areas.
Assessment:	Up to 60 pages of written assignments (60%: two assignments worth 30% each, due mid and late in semester), a two-hour written examination (40%, in the examination period).
Prescribed Texts:	TBA
Recommended Texts:	None.
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:	Upon completion of this subject, students should develop:

	- problem-solving skills (especially through tutorial exercises and assignments) including engaging with unfamiliar problems and identifying relevant strategies; - analytical skills including the ability to construct and express logical arguments and to work in abstract or general terms to increase the clarity and efficiency of the analysis; - ability to work in a team, through interactions with other students.
Related Majors/Minors/ Specialisations:	R05 PM Master of Science (Management Science) R05 RM Master of Science - Mathematics and Statistics