433-521 Algorithms and Complexity

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. Semester 2, - Taught on campus.
Time Commitment:	Contact Hours: 3 hours per week; Non-contact time commitment: 84 hours Total Time Commitment: Not available
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	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. 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
Coordinator:	Dr Anthony Ian Wirth, Ms Antonette Mendoza
Subject Overview:	Topics covered include complexity classes and asymptotic notations; empirical analysis of algorithms; abstract data types including queues, trees, heaps and graphs; algorithmic techniques including brute force, divide-and-conquer, dynamic programming and greedy approaches; space and time trade-offs; and the theoretical limits of algorithm power.
Objectives:	-
Assessment:	Project work during semester expected to take approximately 36 hours (40%) and one written examination not exceeding 3-hours at the end of the semester (60%). Details of assessment components will be advised at the commencement of the subject. Both components must be completed satisfactorily to pass the subject.
Prescribed 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:	On successful completion, students should: # understand a range of programming languages and their application; # knowledge a variety of techniques for solving, sorting and searching problems; # an understanding of graph algorithms; # experience with using complex algorithms and data structures in a variety of programming languages; # knowledge of the concepts of computability, tractability and problem complexity; # the ablity to perform complexity analyses of algorithms; # be able to undertake problem identification, formulation and solution;

	# have a capacity for independent critical thought, rational inquiry and self-directed learning; and # have a profound respect for truth and intellectual integrity, and for the ethics of scholarship.
Related Course(s):	Master of Engineering in Distributed Computing Master of Information Technology