436-436 Advanced Computational Mechanics

Credit Points:	12.500
Level:	Undergraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Semester 2, - Taught on campus.
Time Commitment:	Contact Hours: Thirty-six hours of lectures and 12 hours of practice classes Total Time Commitment: Not available
Prerequisites:	431-202 Engineering Analysis B or 620-331 Applied PDE's
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 A Ooi
Subject Overview:	Upon completion, students should be able to comprehend a wide variety of numerical computational techniques for solving ordinary and partial differential equations frequently encountered in engineering problems and identify the strengths and weaknesses of the various competing computational methods. Topics covered include modelling engineering systems using ordinary and partial differential equations; finite difference schemes; and weighted residual methods and spectral methods. All necessary theories in order for students to be able to use commercial computational fluid dynamics (CFD) software proficiently.
Assessment:	One 3-hour end-of-semester examination (60%); two assignments, each not exceeding 50 pages including diagrams, tables, computations and computer output due throughout the semester (20% each).
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:	# ability to apply knowledge of basic science and engineering fundamentals # in-depth technical competence in at least one engineering discipline # ability to undertake problem identification, formulation and solution

	# capacity for independent critical thought, rational inquiry and self-directed learning
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