436-431 Mechanics 4

Credit Points:	12.500
Level:	Undergraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Semester 1, - Taught on campus.
Time Commitment:	Contact Hours: Forty lectures and eight hours of tutorials and laboratory work Total Time Commitment: Not available
Prerequisites:	436-354 Mechanics 3 or equivalent
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 C Burvill
Subject Overview:	Unit 1, Mechanics of Solids: Upon completion, students should be able to formulate physical and mathematical models of mechanical systems for stress analysis, obtain solutions using analytical and/or numerical methods and have an increased understanding of the stress analysis of complex structures. Topics covered include mathematical theory of elasticity in three dimensions; reduction to two dimensions; plane stress and plane strain; Airy's stress function and its application to practical problems; finite difference and finite element methods; and torsion. Unit 2, Dynamics: Upon completion, students should be able to formulate physical and mathematical models of mechanical systems for vibration analysis, obtain solutions using analytical and/or numerical methods and have an increased understanding of vibration analysis of complex structures. Topics include vibration of discrete and continuous systems; modal analysis; vibration isolation; torsional and bending vibrations; vibration absorbers; and system identification.
Assessment:	Two 2-hour examinations (40% each) and a assignment not exceeding 20 pages including computations, diagrams, tables and computer output (20%).
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

	# 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 # expectation of the need to undertake lifelong learning, capacity to do so # capacity for independent critical thought, rational inquiry and self-directed learning # intellectual curiosity and creativity, including understanding of the philosophical and methodological bases of research activity # openness to new ideas and unconventional critiques of received wisdom # profound respect for truth and intellectual integrity, and for the ethics of scholarship
Related Course(s):	Bachelor of Engineering (EngineeringManagement)Mechanical&Manufacturing Bachelor of Engineering (Mechanical &Manufacturing) and Bachelor of Arts 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 Bachelor of Engineering(Mechanical & Manufacturing) and Bachelor of Laws