436-202 Mechanics 1

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: Thirty-six hours of lectures and 12 hours of tutorial and laboratory work Total Time Commitment: Not available
Prerequisites:	436-121 Introduction to Mechanical Engineering and 620-141 Maths A or 620-121 Maths A (Advanced); and 620-143 Applied Maths or 620-123 Applied Maths (Advanced).
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
Subject Overview:	Unit 1, Mechanics of Materials: On completion of this unit, students should be able to understand elastic and inelastic behaviour; and determine stresses and deformations in common structural elements. Topics covered include two-dimensional stress and strain analysis; principal values; Mohr's circle; failure criteria; inelastic behaviour; basic properties of beams, symmetric bending; flexure by McAulay's method, superposition, indeterminacy; torsion of round bars; stresses in cylindrical pressure vessels; and the compressive behaviour of short and long columns. Unit 2, Dynamics of Machines: On completion of this unit students should understand principles of the two-dimensional mechanics of a rigid body. Be able to carry out dynamic analysis of planar mechanical system. Topics covered include dynamics of a particle in terms of inertial frames (work, kinetic energy, power, equations of motion), plane dynamics of a rigid body (kinetic energy, moments of inertia, equations of motion), dynamics of plane mechanisms (constraints, mobility, degrees of freedom, equations of motion).
Assessment:	One 3-hour end of semester written examination (80%), together with three assignments not exceeding 1400 words each due throughout the semester (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

	# in-depth technical competence in at least one engineering discipline # ability to undertake problem identification, formulation and solution # expectation of the need to undertake lifelong learning, capacity to do so # capacity for independent critical thought, rational inquiry and self-directed learning # profound respect for truth and intellectual integrity, and for the ethics of scholarship
Related Course(s):	Bachelor of Engineering (Biomedical) Biomechanics 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