

CVEN40007 Steel & Concrete Design

Credit Points:	12.50									
Level:	4 (Undergraduate)									
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.									
Time Commitment:	Contact Hours: 18 hours lectures, 5 tutorials, 1 video lab and 24 hours of formal design classes Total Time Commitment: 120 hours for the semester									
Prerequisites:	The prerequisites for this subject is <table border="1" data-bbox="389 546 1485 752"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>421-307 Structural Engineering 1</td> <td>Not offered 2010</td> <td></td> </tr> <tr> <td>421-317 Structural Engineering 2</td> <td>Not offered 2010</td> <td></td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	421-307 Structural Engineering 1	Not offered 2010		421-317 Structural Engineering 2	Not offered 2010	
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421-307 Structural Engineering 1	Not offered 2010									
421-317 Structural Engineering 2	Not offered 2010									
Corequisites:	None									
Recommended Background Knowledge:	None									
Non Allowed Subjects:	None									
Core Participation Requirements:	For the purposes of considering requests for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/									
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Subject Overview:	This subject integrates structural theory and design. Topics covered include theory behind brittle fracture and fatigue of steel structures; design of steel connections; idealised frame method of slab design; flat plates and slabs; punching shear; partially pre-stressed beams and slabs; procedures and processes involved in the design of steel and concrete structures. Two group design projects will allow students to practice their design skills.									
Objectives:	At the completion of this subject students should be able to: <ul style="list-style-type: none"> # Describe the factors which cause steel to fail in brittle fracture. # Assess the fatigue performance of simple steel structures. # Describe the behaviour of partially prestressed concrete beams, and analyse and design these structures. # Design concrete systems including one-way slabs, slabs supported on all 4 sides by beams or walls, flat plates and slabs. 									

	# Work effectively in small groups in a manner similar to that adopted in a design office to design substantial steel and concrete structures.
Assessment:	One group assignment (2,000 words per student equivalent) in the first half of semester (30%) One group assignment (1,000 words per student equivalent) in the second half of semester (15%) One lab assignment (5%) One 3 hour end of semester exam (50%) Passing of the exam is a hurdle requirement of the subject. Team cooperation and contributions will be taken into account in awarding individual marks for team outcomes.
Prescribed Texts:	Steel Structures Design Handbook HB48 (Standards Australia) 1999 Handbook 2.2 Australian Standards for Civil Engineering Students – Part 2: Structural Design (Standards Australia) 2003
Recommended Texts:	# Steel Designers Handbook (Gorenc, B., Tinyou, R., and Syam, A.) UNSW Press 2005 # Concrete Structures (Warner, R.F., Rangan, B.V., Hall, A.S., Faulkes, K. Longman) 1998 1st Edition # Design and Analysis of Concrete Structures (Fairhurst, L) McGraw-Hill Book Co. 1990 # Concrete Technology (Neville, A.M. and Brooks, J.J.) Longman Revised reprint 1990 # Handbook for Reinforced Concrete Design C&CA (T38) & Standards Australia (HB71-2002)
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:	# Knowledge of science and engineering fundamentals # 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 complex problems and to design and operational performance # Proficiency in engineering design # Ability to manage information and documentation # Capacity for creativity and innovation
Notes:	# Special computer requirements: Spacegass software # Subject offered for last time in 2010
Related Course(s):	Bachelor of Engineering (Civil Engineering) Bachelor of Engineering (Civil) and Bachelor of Arts Bachelor of Engineering (Civil) and Bachelor of Commerce Bachelor of Engineering (Civil) and Bachelor of Laws Bachelor of Engineering (Civil) and Bachelor of Science Bachelor of Engineering (Engineering Management) Civil