CVEN90049 Structural Theory and Design 2

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2012, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 48 hours (Lectures: 30 hours, Workshops/Laboratories: 18 hours) per semester Total Time Commitment: 120 hours
Prerequisites:	Successful completion of the following subject is required

Subject	Study Period Commencement:	Credit Points:
CVEN30009 Structural Theory and Design	Semester 2	12.50

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:	Prof Priyan Mendis
Contact:	Elisa Lumantarna **elu@unimelb.edu.au (mailto:elu@unimelb.edu.au)**
Subject Overview:	This subject introduces more advanced methods of structural analysis and design, and their applications to the engineering of reinforced concrete and structural steel in compliance with the standards. Students will be given the opportunity to integrate the use of different materials into the design of contemporary structures through design projects
Objectives:	On completion of this subject students should be able: ＃ Implement Displacements Methods (involving the use of stiffness matrices) for the analysis of indeterminate beams and frames ＃ Apply a structural analysis package (eg. Spacegass) as applied to a common structural system ＃ Implement Virtual Displacement method and reciprocal theorem for the construction of Influence lines ＃ Implement Euler-Bernoulli Equations of dynamic equilibrium, SDOF systems in free vibration and Rayleigh method ＃ Implement impact response analysis involving the combined use of principles of conservation of momentum and energy ＃ Implement the design of RC beams, columns and slabs with combined loading ＃ Implement design of steel beams and columns subject to combined actions using bolted and welded connections ＃ Implement the design of thin walled sections for the determination of the shear centre and torsional analysis

	# Describe the concepts of uniform/non-uniform torsion; asymmetrical bending # Design structural systems involving the combined use of materials
Assessment:	One 3-hour examination, end of semester (70%)One 2000 word group assignment, due week 6 (10%)4 x 250 word laboratory assignment reports, due at regular intervals throughout the semester (5% each)
Prescribed Texts:	None
Recommended 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:	# Ability to apply knowledge of science and engineering fundamentals # Ability to undertake problem identification, formulation and solution # Ability to utilise a systems approach to complex problems and to design for operational performance # Proficiency in engineering design # Ability to conduct an engineering project # Ability to communicate effectively, with the engineering team and with the community at large # Ability to function effectively as an individual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member
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
Related Majors/Minors/ Specialisations:	B-ENG Civil Engineering stream Master of Engineering (Civil) Master of Engineering (Structural)