CVEN30009 Structural Theory and Design

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 32 hours of lectures + 16 hours of laboratory/tutorial/design workshops per semester Total Time Commitment: 120 hours for the semester
Prerequisites:	Both the prerequisite + concurrent prerequisite are required. The Prerequisite for this subject is

Subject	Study Period Commencement:	Credit Points:
ENGR20004 Engineering Mechanics	January, Semester 1, Semester 2	12.50

The concurrent prerequisite for this subject is

Concurrent prerequisites are subjects that can be taken either before or with the subject concerned

Subject	Study Period Commencement:	Credit Points:
ENGR20003 Engineering Materials	Semester 2	12.50

Corequisites:	Refer to concurrent prerequisite
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 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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Contact:	Melbourne School of Engineering Ground Floor Old Engineering Building #173 The University of Melbourne VIC 3010 AUSTRALIA General telephone enquiries + 61 3 8344 6703 + 61 3 8344 6507 Facsimiles + 61 3 9349 2182 + 61 3 8344 7707 Email: **eng-info@unimelb.edu.au (mailto:eng-info@unimelb.edu.au)**
Subject Overview:	This subject introduces the basic methods of structural analysis and the design of simple structures which are built mainly of reinforced concrete and steel. A feature of this subject is the integration of the design and analytical skills in dealing with contemporary structures that

	have an effective blending of materials for achieving satisfactory performance and economy in construction.
Objectives:	At the end of this subject students should be able to: # Analyse stresses in beams due to combined axial, bending and torsional loads # Calculate deflections in beams by double integration methods and unit load method # Calculate deflections in frames by unit load method # Conduct stability analysis of simple systems including the buckling of columns and stress amplifications # Analyse using the force method for solving indeterminate systems of beams and frames # Design steel beams, columns and ties, and simple bolted and welded connections # Design reinforced concrete one-way slabs, simple beams and compression-only columns, and basic detailing # Design timber joists and masonry squat walls # Design simple structural systems taking into account the design load cases
Assessment:	3 hour end of semester exam (70%)1000 word assignment (in groups of 3 students) due by the end of week 6 (6%) 4 x 250 word laboratory reports due at regular intervals throughout the semester (6% each, total of 24%)
Prescribed Texts:	None
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2010/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2010/B-COM)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
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 and 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 manage information and documentation # Capacity for creativity and innovation # Understanding of professional and ethical responsibilities, and commitment to them # 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 # Capacity for lifelong learning and professional development
Related Course(s):	Bachelor of 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 Science
Related Majors/Minors/ Specialisations:	Civil (Engineering) Systems Civil Systems Master of Engineering (Civil) Master of Engineering (Structural)