CVEN90016 Concrete Design and Technology

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2012, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 48 hours (Lectures: 3 hours per week, Workshops: 12 hours per semester) Total Time Commitment: 120 hours
Prerequisites:	Admission to Masters of Engineering Structures OR

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:	Assoc Prof Helen Goldsworthy
Contact:	Dr. Helen Goldsworthy **helenmg@unimelb.edu.au (mailto:helenmg@unimelb.edu.au)**
Subject Overview:	This subject introduces the fundamental concepts of design and analysis of prestressed concrete structures with applications to both buildings and bridges. There will also be detailed coverage of the design and construction of concrete highway bridges, the effective use of the strut-and-tie model and the deformation behaviour of reinforced concrete in ultimate conditions. This subject will also cover state-of-the-art concrete technologies including high strength/high performance concrete, mix design for normal and high strength concrete, applications of precast concrete, durability of concrete structures
Objectives:	On completion of this subject students should be able to: # Describe the behaviour of partially prestressed concrete beams, and analyse and design these structures # Describe different methods of constructing concrete bridges # Identify particular economical merits of each method associated with different site constraints # Implement strut and tie design methodology to design non-flexural members such as deep beams and corbels # Describe and implement the modelling of the deformation behaviour of reinforced concrete in ultimate conditions # Describe the technology related to high strength concrete and its applications to contemporary buildings # Design mixes for normal and high strength concrete

	# Describe the use of precast concrete, its advantages and aspects related to its design applications # Identify the key issues related to the durability of concrete structures
Assessment:	One 3 hour examination, end of semester (70%)One assignment (500 words), due week 6 (10%)One assignment (1000 words) due end of semester (20%)
Prescribed Texts:	None
Recommended Texts:	Concrete Structures (R.F. Warner, B.V. Rangan, A.S. Hall & K.A. Faulkes), Longman, 1998
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 and operational performance # Proficiency in engineering design # Ability to manage information and documentation # Understanding of professional and ethical responsibilities, and commitment to them # Capacity for creativity and innovation # 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) Master of Engineering Structures Master of Engineering Structures Postgraduate Certificate in Engineering
Related Majors/Minors/ Specialisations:	B-ENG Civil Engineering stream Master of Engineering (Civil) Master of Engineering (Structural)