CVEN90016 Concrete Design and Technology

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2013.
Time Commitment:	Contact Hours: 48 hours (Lectures: 3 hours per week: 32 hours per semester), Workshops, Labs and Tutorials: 16 hours per semester) Total Time Commitment: 120 hours
Prerequisites:	Admission to Masters of Engineering Structures OR

Subject	Study Period Commencement:	Credit Points:
CVEN90049 Structural Theory and Design 2	Not offered 2013	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
Contact:	Assoc Prof Helen Goldsworthy **helenmg@unimelb.edu.au (mailto:helenmg@unimelb.edu.au)**
Subject Overview:	This subject introduces the students to advanced modelling techniques for concrete structures and design and analysis of prestressed concrete structures with applications to both buildings and bridges. There will be detailed coverage of the effective use of the strut-and-tie model. This subject will also cover advanced concrete technology with aspects on deterioration mechanisms and the design for durable concrete structures.

Objectives:	On the completion of this subject students should be able to:
	# Use advanced modelling techniques and tools for modelling concrete structures.
	# Use strut and tie design methodology to design non-flexural members such as deep beams.
	# Describe the technology related to high strength concrete and demonstrate awareness of the important factors affecting its performance in practical applications.
	# Design against physical and chemical attack of concrete structures.
	# Describe the behaviour of partially prestressed concrete beams, and analyse and design these structures with particular reference to :
	  # Properties of prestressing steel and types of prestressing systems
	  # Sectional behaviour at service load level, equivalent load concept and load balancing
	  # Creep and shrinkage in concrete
	  # Estimation of prestress losses, deflection and amount of cracking
	  # Indeterminate structures

	# Anchorages # Applications to building and bridge construction # Describe the use of precast concrete, its advantages and aspects related to its design application.
Assessment:	The assessment for this subject comprises of the following: One assignment or test on concrete technology (10%) One assignment on prestressed concrete (10%) One assignment on deformation modelling of reinforced concrete (10%) 3-hour end of semester examination (70%)
Prescribed Texts:	None
Recommended Texts:	Warner, RF; Rangan, BV; Hall, AS & Faulkes, KA 1998 *Concrete Structures*, Longman
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 Master of Philosophy - Engineering Ph.D.- Engineering Postgraduate Certificate in Engineering
Related Majors/Minors/ Specialisations:	B-ENG Civil Engineering stream Master of Engineering (Civil) Master of Engineering (Structural)