CHEN90037 Safety, Environment and Design

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2015, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 2 hour lecture and 3 hour workshop each week Total Time Commitment: 200 hours
Prerequisites:	CHEN30005 Heat and Mass Transport Processes may be taken concurrently

Subject	Study Period Commencement:	Credit Points:
CHEN30001 Reactor Engineering	Semester 1	12.5
CHEN30005 Heat and Mass Transport Processes	Semester 1, Semester 2	12.5

Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	

Subject	Study Period Commencement:	Credit Points:
CHEN30015 Process Engineering Case Studies	Semester 2	12.5
CHEN90017 Process Engineering Case Studies	Not offered 2015	12.5

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:	Dr Luke Connal
Contact:	**luke.connal@unimelb.edu.au (mailto:luke.connal@unimelb.edu.au)**
Subject Overview:	This subject aims to develop critical thinking skills essential for work in the chemical process and other industries. Students will learn by tackling ill-defined engineering tasks, learn to organise and prioritise tasks to meet deadlines and improve their analytical and written communication skills. They will gain an appreciation of the tools and resources used in the design of process plants. Their understanding of issues relating to project management and plant safety will also be deepened. The emphasis on industrial processes is consolidated by the use of a number of industry-based speakers. INDICATIVE CONTENT This subject covers the following topics: # Development and application of selection criteria for making appropriate, context-specific engineering decisions # Process simulation techniques including heat and power integration

	# Process safety, including HAZOP and Quantitative Risk Assessment techniques # Sustainable engineering processes, including Life Cycle Analysis techniques and an understanding of waste management # Environmental Impact Assessment # Professional ethics # Technical report writing
Learning Outcomes:	On completion of this subject the student is expected to: # Approach and solve complex,open-ended process engineering design problems which requires expert judgement and critical analysis of complex information # Be cognisant of the broader social, environmental and financial contexts in which engineering processes take place # Perform HAZOP and QRA Safety Analyses on a range of complex systems requiring the critical application of knowledge and professional judgement # Construct an Environmental Impact Assessment Use sustainable engineering practices, such as Life Cycle Analysis requiring the interpretation of sometimes conflicting information # Understand their ethical responsibilities as an engineer # Write a professional engineering technical report requiring the assimilation and critical analysis of information
Assessment:	Three essays, each consisting of no more than 1000 words (word limits do not include appendices, diagrams, tables, computations or computer output). Overall time commitment of approximately 39-45 hours (13-15 hours per assignment). All Intended Learning Outcomes (ILOs) are addressed in the essays. One due in the first-half of semester, one in the second second-half of semester, and one during the examination period. 30% (10% per essay). Seven in-class assignments, each to be completed within a 3 hour workshop session and each of equal weighting to a total of 40%. Preparation time of up to 6 hours for each workshop (including pre-reading tasks). All ILOs are addressed in the assignments. Delivered throughout the semester starting from week 1. 40%. Two major assignments; each consisting of no more than 1000 words in length (word limits do not include appendices, diagrams, tables, computations or computer output). Overall time commitment of approximately 30-40 hours (15-20 hours per assignment) . All ILOs are addressed in the major assignments. One due in the first-half of semester and the second due in the second-half of semester. 30% (15% per assignment).
Prescribed 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 basic science and engineering fundamentals with judgement # Ability to communicate effectively, not only with engineers but also with the community at large # Ability to critically analyse, reflect on and synthesise complex and sometimes competing or incomplete information and to develop solutions to engineering problems. # Ability to utilise a systems approach to design and operational performance # Ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams # Understanding of the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development, particularly where these responsibilities may be competing and conflicting