411-102 Chemical Process Analysis

Credit Points:	12.500
Level:	Undergraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Summer Term, - Taught on campus. Semester 2, - Taught on campus.
Time Commitment:	Contact Hours: Thirty-two hours of lectures, 11 hours of tutorials and 5 hours of laboratories and workshops. Total Time Commitment: Not available
Prerequisites:	None
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 D Shallcross
Subject Overview:	This subject is an introduction to chemical engineering flowsheet calculations, including material and energy balances, unit systems, and real gas and vapour behaviour predictions. Topics include systems of units and unit conversion; concept of conservation of mass is developed as the basis for determining mass flows in chemical processing systems; material balances around single process units, and groups of units, involving simple systems and recycle streams, and non-reacting and reacting systems; component, elemental balances; gases, liquids and vapours, ideal and real gas behaviour, use of compressibility factor and generalised compressibility factor charts, vapour pressure estimation, humidity; and concept of conservation of energy is developed as the basis for determining energy flows in and around chemical processing systems, evaluation of enthalpy changes with and without phase change, simplified energy balances for batch, steady-state and adiabatic-systems, estimation of heats of reaction, combustion, solution and dilution, energy balances in reacting systems, simultaneous material and energy-balances.
Assessment:	One written 1.5-hour mid-semester examination (20%), one written assisgment of no more than 1000 words (10%), due week 4 summer semester, week 9 semester 2; and one written 2-hour end-of-semester examination (70%).
Prescribed Texts:	None
Recommended Texts:	Information Not Available
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

	# ability to undertake problem identification, formulation and solution # 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, with the capacity to be a leader or manager as well as an effective team member
Notes:	**Only** available to students who commenced their degree prior to 2008
Related Course(s):	Bachelor of Engineering (Chemical) and Bachelor of Arts Bachelor of Engineering (Chemical) and Bachelor of Commerce Bachelor of Engineering (Chemical) and Bachelor of Laws