411-447 Design Project

Credit Points:	18.750
Level:	Undergraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Semester 2, - Taught on campus.
Time Commitment:	Contact Hours: Seventy-two hours Total Time Commitment: Not available
Prerequisites:	411-432 Particle Mechanics and Processing (prior to 2005 411-332), 411-303 Reactor Engineering (prior to 2005 411-433), 411-335 Biochemical/Environmental Engineering 1B, 411-336 Process Dynamics and Control, 411-337 Practical Work and Computer Laboratory, 411-441 Heat and Mass Transport Processes 2, 411-442 Process Equipment Design and 411-343 Chemical Engineering Management
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:	Dr S Kentish & Mr B Hooper
Subject Overview:	Students successfully completing the course will learn the skills necessary to complete a chemical engineering feasibility study and to carry out the integrated process and equipment design for an industrial chemical process. They will be presented with an initially poorly-defined task for which much of the design data is not available. In completing the design they will apply most of the skills learned earlier in their course and will learn to function as part of a team and to manage their time effectively. This unit requires the students to undertake a major design task utilising the knowledge gained throughout the chemical engineering course. This comprises the following tasks: design of a process to meet a specified requirement; feasibility study of alternative processes which meet the specification; determination of sequence for investigation of a chemical manufacturing project and preparation of a report; consideration of environmental impacts and sustainability issues; preparation of flowsheets; confirmation of effects of market forecasts; economic evaluation; preparation of estimates for the minimisation of capital and production costs; specification of equipment; selection of construction materials; and specification of instrumentation location, staff and labour requirements and safety precautions. The HYSYS simulation package will be utilised where appropriate. There will also be a series of lectures on various aspects of design.
Assessment:	Three written reports of up to 200 pages in total and with no more than 100 pages of supporting material (appendices, diagrams, tables, computations and computer output). The first report is due one third of the way through the semester (15%), the second report is due two thirds of the way through the semester (30%) and the final report (55%) is due at the end of the semester. The first two reports include team-based tasks and peer assessments by team members will be included in the final mark.
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 # in-depth technical competence in at least one engineering discipline # 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 # understanding of the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development # understanding of the principles of sustainable design and development # capacity for independent critical thought, rational inquiry and self-directed learning # openness to new ideas and unconventional critiques of received wisdom
Related Course(s):	Bachelor of Engineering (Chemical Engineering) Bachelor of Engineering (Chemical) and Bachelor of Arts Bachelor of Engineering (Chemical) and Bachelor of Commerce Bachelor of Engineering (Chemical) and Bachelor of Laws Bachelor of Engineering (Chemical) and Bachelor of Science Bachelor of Engineering (EngineeringManagement) Chemical Bachelor of Engineering(Biochemical Engineering)and Bachelor of Science