

CHEN90022 Chemical Engineering Design Project

Credit Points:	25
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2011, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus. A self-learning engineering design project, conducted as a team, aided by lectures and consultation sessions.
Time Commitment:	Contact Hours: 1 x 2 hour lecture + 1x 3 hour consultation session per week Total Time Commitment: Estimated 240 hours
Prerequisites:	Students must have taken the following subjects prior to enrolling in this subject: CHEN30001 Reactor Engineering (../view/current/CHEN30001) (prior to 2011 CHEN40003 Reactor Engineering) CHEN30009 Process Dynamics and Control (../view/current/CHEN30009) CHEN30005 Heat and Mass Transport Processes (../view/current/CHEN30005) CHEN90020 Chemical Engineering Management (../view/current/CHEN90020) (prior to 2011 CHEN30013 Chemical Engineering Management OR CHEN40006 Chemical Engineering Management) CHEN90019 Advanced Heat and Mass Transport Processes (../view/current/CHEN90019) CHEN90013 Process Engineering (../view/current/CHEN90013) (prior to 2011 CHEN40007 Process Engineering 3) CHEN90012 Process Equipment Design (../view/current/CHEN90012) (prior to 2011 CHEN40005 Process Equipment Design)
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	(lookup/LookupPreview.jsp?csclid=63417&documentCode=BIEN90002&view=editor) Credit will not be given for this subject and the following subject: BIEN90002 Biomolecular Engineering Design Project (../view/2011/BIEN90002)
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
Coordinator:	Prof Sandra Kentish
Contact:	Email: sandraek@unimelb.edu.au (mailto:sandraek@unimelb.edu.au)
Subject Overview:	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.

Objectives:	On completion of this subject students should be able to: <ul style="list-style-type: none"> # Complete a chemical engineering feasibility study; and # Carry out the integrated process and equipment design for an industrial chemical process, which is initially poorly-defined and for which much of the design data is not available. # Function as part of a team and manage their time effectively.
Assessment:	Three written reports as follows: The first report, of up to 30 pages, is due one third of the way through the semester (15%) The second report, of up to 100 pages (not including supporting material such as appendices, diagrams, tables, computations and computer output), is due two thirds of the way through the semester (30%) The final report, of up to 100 pages (not including supporting material such as appendices, diagrams, tables, computations and computer output), is due at the end of the semester(55%).
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:	<ul style="list-style-type: none"> # 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 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
Related Majors/Minors/ Specialisations:	B-ENG Chemical Engineering stream Master of Engineering (Chemical)