BIEN90002 Biomolecular 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) **CHEN30009 Process Dynamics and Control (../../view/current/CHEN30009)** **CHEN30005 Heat and Mass Transport Processes (../../view/current/CHEN30005)** **CHEN90020 (../../view/current/CHEN90020) Chemical Engineering Management (../../view/current/CHEN90020)** (prior to 2011 CHEN30013 Chemical Engineering Management or CHEN40006 Chemical Engineering Management) **CHEN90009 Fermentation Processes (../../view/current/CHEN90009)** **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:	Credit will not be given for this subject and the following subject:

Subject	Study Period Commencement:	Credit Points:
CHEN90022 Chemical Engineering Design Project	Semester 2	25

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 Biomolecular 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: # Apply the skills necessary to complete a chemical engineering feasibility study; and # Carry out the integrated process and equipment design for an industrial chemical process, which is 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. # 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%)TThe 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:	# 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 and Biomolecular Engineering)
Related Majors/Minors/ Specialisations:	B-ENG Chemical and Biomolecular Engineering stream Master of Engineering (Biomolecular)