# CHEN90013 Process Engineering

| | |
|---|---|
| **Credit Points:** | 12.50 |
| **Level:** | 9 (Graduate/Postgraduate) |
| **Dates & Locations:** | 2012, Parkville<br>This subject commences in the following study period/s:<br>Semester 1, Parkville - Taught on campus. |
| **Time Commitment:** | Contact Hours: 1 x one hour lecture + 1 x three hour workshop Total Time Commitment: Estimated 120 hours |
| **Prerequisites:** | Students must have taken the following subjects prior to enrolling in this subject:<br>**CHEN30005 Heat and Mass Transport Processes (../../view/2012/CHEN30005)**<br>**CHEN90020 Chemical Engineering Management (../../view/2012/CHEN90020)** (Prior to 2010 CHEN40006 Chemical Engineering Management or CHEN30013 Chemical Engineering Management)<br>**CHEN30001 (../../view/2012/CHEN30001) Reactor Engineering (../../view/2012/CHEN30001)** (Prior to 2010 CHEN40003 Reactor Engineering)<br>**CHEN90032 Process Dynamics and Control (../../view/2012/CHEN90032)** (Prior to 2012 CHEN30009 Process Dynamics and Control)<br>**CHEN30015 Process Engineering Case Studies (../../view/2012/CHEN30015)** (Prior to 2012 CHEN90017 Process Engineering Case Studies)<br><br>CHEN90020 Chemical Engineering Management can also be taken concurrently. |
| **Corequisites:** | None |
| **Recommended Background Knowledge:** | None |
| **Non Allowed Subjects:** | CHEN40007 Process Engineering |
| **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:** | Dr John Provis, Dr Sally Louise Gras |
| **Contact:** | Email: **jprovis@unimelb.edu.au (mailto:jprovis@unimelb.edu.au)** |
| **Subject Overview:** | Students completing this subject will develop experience in critical thinking by tackling ill-defined engineering tasks as well as organising and prioritising tasks to meet deadlines. Their analytical and written communication skills will be enhanced. 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 be deepened.<br>Content: Practice in conducting chemical plant feasibility and design studies through a series of assignments in the following areas: process plant feasibility analysis, sensitivity of process economics to external influences, consideration of technological, market, environmental and other effects on project viability. Integrated process design of chemical plants including the necessary documentation and the consideration of control strategy for safe operation. Discussion of the various tools and resources available for design of chemical processes, and |

| | |
|---|---|
| | critical analysis of information sources. Issues relating to project and safety management. Preparation and presentation of professional-quality technical reports. |
| **Objectives:** | On completion of this subject students should be able to:<br># Understand the steps involved in designing a chemical processing facility, and to competently undertake many aspects of the design process<br># This will include both technical and non-technical aspects, in particular the need for such a facility to operate safely and economically, and the means by which technical information is communicated |
| **Assessment:** | Eleven variously weighted assignments spread across the semester; some are completed within the subject's weekly 3-hour class sessions. |
| **Prescribed Texts:** | None |
| **Recommended Texts:** | L. Albright (Ed.), Albright's Chemical Engineering Handbook, CRC Press, 2008 (note: this is available as an e-book through the library)<br>W.D. Seider, J.D. Seader, D.R. Lewin, S. Widagdo, Product and Process Design Principles: Synthesis, Analysis, and Evaluation, Third Edition, John Wiley, 2009 |
| **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<br># Ability to analyse and utilise a variety of information sources<br># Ability to communicate effectively, not only with engineers but also with the community at large<br># Ability to function effectively as an individual and in multi-disciplinary and multicultural teams, with the capacity to be a leader or manager as well as an effective team member<br># Understanding of the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development |
| **Related Course(s):** | Bachelor of Engineering (Chemical Engineering)<br>Bachelor of Engineering (Chemical and Biomolecular Engineering)<br>Bachelor of Engineering (Chemical) and Bachelor of Science |
| **Related Majors/Minors/ Specialisations:** | B-ENG Chemical Engineering stream<br>B-ENG Chemical and Biomolecular Engineering stream<br>Master of Engineering (Biomolecular)<br>Master of Engineering (Chemical) |