CHEN90009 Fermentation Processes

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2011, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 3 x one hour lectures + 1 x one hour tutorial per week + 1 x 4 hours of laboratory work per semester Total Time Commitment: Estimated 120 hours
Prerequisites:	Students must have taken the following subject prior to enrolling in this subject: **Subject** | **Study Period Commencement:** | **Credit Points:** CHEN30001 Reactor Engineering | Semester 1 | 12.50 AND students must have taken the following subject (or equivalent) prior to enrolling in this subject: **Subject** | **Study Period Commencement:** | **Credit Points:** CHEN90016 Metabolic Engineering | Semester 2 | 12.50
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 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 Greg Martin
Contact:	Email: **gjmartin@unimelb.edu.au (mailto:gjmartin@unimelb.edu.au)**
Subject Overview:	Batch and continuous culture. Kinetics of microbial growth and product formation. Sterilisation and aseptic equipment design. Factors affecting the selection of media for industrial fermentations. Design of stirred-tank, airlift and other fermenters. Special requirements of plant and animal cell culture. Design for oxygen transfer and mixing. Materials selection. Fermenter scale-up. Fermentation process monitoring and control. Downstream separation technologies including ion exchange and chromatography. Ethical, legal and regulatory issues in fermentation process engineering. Practice classes on the solution of open-ended problems in fermentation process design. Practical work (fermentations and downstream separation techniques).
Objectives:	On completion of this subject students should be able to: • complete the process design of simple industrial scale fermentation processes, • develop control strategies for simple industrial scale fermentation processes, • solve open-ended design problems in fermentation process engineering, • exhibit practical skills in the conduct of fermentations and associated downstream separation processes.
Assessment:	An examination of three hours contributing 70% to the assessment, practice class assignments totalling not more than 4,000 words contributing 20% to the assessment, and practical work

	reports totalling not more than 1,000 words contributing 10% to the assessment. A mark of 40% or more in the end of semester examination is required to pass the subject.
Prescribed Texts:	None
Recommended 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 # An ability to utilise a systems approach to design and operational performance.
Related Majors/Minors/ Specialisations:	B-ENG Chemical and Biomolecular Engineering stream Master of Engineering (Biomolecular)