

CHEN90011 Bioenvironmental Engineering

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2013. Lectures, tutorials and practical work.
Time Commitment:	Contact Hours: An average of 3 hours of lectures per week + 2 x three hour practical work sessions per semester + 1 x field trip per semester. Total Time Commitment: Estimated 120 hours
Prerequisites:	Students must have passed the following subject: CHEN30001 Reactor Engineering (../view/current/CHEN30001) (Prior to 2010 CHEN40003 Reactor Engineering) as well as ONE OF the following subjects prior to enrolling in this subject: CHEN90031 Bioprocess Engineering (../view/current/CHEN90031) (Prior to 2012 CHEN30014 Bioprocess Engineering) BTCH90006 Bioprocess Engineering (../view/current/BTCH90006) CHEN90008 Biology for Engineers (prior to 2013)
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	CHEN40014 Bioenvironmental Engineering CHEN40010 Biochemical/Environmental Engineering 2
Core Participation Requirements:	For the purposes of considering applications for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005) and Students Experiencing Academic Disadvantage Policy, this subject requires all students to actively and safely participate in laboratory activities. Students who feel their disability may impact upon their participation are encouraged to discuss this with the Subject Co-ordinator and the Disability Liaison Unit http://www.services.unimelb.edu.au/disability/
Contact:	Email: gjmartin@unimelb.edu.au (mailto:gjmartin@unimelb.edu.au)
Subject Overview:	The characteristics of liquid and solid wastes and the objectives of waste treatment; important waste assay procedures; primary, secondary and tertiary wastewater treatment processes; physical and chemical treatment processes for both liquid and solid wastes; biological waste treatment and the role of various microbial groups: anaerobic, facultative, aerobic and aerated lagoons and factors affecting their design; activated sludge and related processes; adherent growth processes and associated design considerations; biological and physico-chemical removal of nitrogen and phosphorus; anaerobic processes and their use in liquid and solid waste treatment; treatment and disposal of biosolids; recycling and reuse of wastes; sustainability and cleaner production.
Objectives:	<ul style="list-style-type: none"> # Students successfully completing this subject should have a broad understanding of the nature of waste streams, the principles underlying their treatment, and the important processes used to treat a variety of domestic, industrial and agricultural wastes # In addition they will have gained an understanding of the more important physical, chemical and biological techniques used in the process design of a variety of waste treatment systems # They will also have gained practical experience in the operation of a bench scale activated sludge unit and the common assay procedures used to evaluate its performance
Assessment:	One 3-hour examination at the end of semester (70%) One mid-term test (20%) One practical report of no more than 2000 words (10%) An overall mark of 50% and a mark of 40% or more in the end of semester examination are needed 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:	<p>The subject will enhance the following generic skills:</p> <ul style="list-style-type: none"> # The capacity for independent thought. # The ability to comprehend complex concepts and communicate lucidly this understanding # Awareness of advanced technologies in the discipline # The ability to work in a team (practical work component)
Related Course(s):	<p>Bachelor of Engineering (Chemical Engineering) Bachelor of Engineering (Chemical and Biomolecular Engineering) Master of Philosophy - Engineering Ph.D.- Engineering</p>
Related Majors/Minors/ Specialisations:	<p>B-ENG Chemical Engineering stream B-ENG Chemical and Biomolecular Engineering stream Master of Engineering (Biomolecular) Master of Engineering (Chemical)</p>