



The University of Southern Queensland

## Course specification

The current and official versions of the course specifications are available on the web at <http://www.usq.edu.au/coursespecification/current>.  
Please consult the web for updates that may occur during the year.

### Description: Environmental Technology

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
ENV	4204	86334	1, 2009	EXT	1.00	Toowoomba

<b>Academic group:</b>	FOENS
<b>Academic org:</b>	FOES03
<b>Student contribution band:</b>	2
<b>ASCED code:</b>	039901

### STAFFING

Examiner: Vasanthadevi Aravinthan  
Moderator: Mark Porter

### SYNOPSIS

This course is designed to introduce the student to the interactive complexity of environmental problem solving. It will : (i) acquaint students with a wide range of pollution and waste management issues (including air, water and noise pollution; solid waste disposal; bioremediation; and the setting of emission and quality standards); (ii) provide students with the knowledge to assess and develop solutions for these issues; (iii) provide an awareness of modern environmental protection legislation and ethical considerations that form the background to engineering activity.

### OBJECTIVES

The course objectives define the student learning outcomes for a course. The assessment item(s) that may be used to assess student achievement of an objective are shown in parenthesis. On completion of this course, students should be able to:

1. evaluate representative sources and the effects of air, water and noise pollution (Assignment 1, Exam);
2. apply appropriate theory to predict: the transport and dispersion of air and water pollutants; the transmission of noise; flow and solute movement through porous media (Assignment 1, Exam);
3. apply appropriate techniques to the measurement of quantities based on human sensory perceptions such as odour and noise (Assignment 1, Exam);
4. justify the need for emission and quality standards and apply the standards appropriately (Assignment 1, Exam);
5. evaluate measures for the control of air and water quality (Assignment 1, Exam);
6. analyse the social forces involved in the generation and minimisation of solid wastes (Exam);
7. evaluate the factors important in the design of effective solid waste disposal, processing or recycling schemes (Exam);

8. analyse and evaluate the factors governing the occurrence of acid sulphate soils and evaluate their impact on the environment (Exam);
9. analyse and evaluate the range of soil treatments available for mine site rehabilitation (Exam);
10. explain the philosophy and workings of current environmental legislation (Assignment 1, Exam);
11. explain the role of public consultation in engineering projects (Assignment 1, Exam);
12. apply internationally recognised ethical standards and environmental principles (Assignment 1, Exam).

## TOPICS

Description	Weighting (%)
1. Environmental Technology	15.00
1.1. Air pollution - sources and effects	
1.2. Mechanics of transport and dispersion of pollutants	
1.3. Air pollution control measures	
1.4. Air quality and emission standards	
1.5. Odour	
2. Water Quality	25.00
2.1. Sources and effects	
2.2. Standards	
2.3. Effluent disposal on land	
3. Groundwater Pollution	15.00
3.1. Groundwater hydraulics	
3.2. Sources	
3.3. Mechanics of solute movement	
3.4. Assessment	
3.5. Quality standards	
4. Solid Waste	10.00
4.1. Landfill	
4.2. Composting	
4.3. Incineration	
4.4. Recycling	

5.	Noise	10.00
	5.1. Sources and characteristics	
	5.2. Control mechanisms	
	5.3. Standards	
6.	Soil Response to Development	15.00
	6.1. Acid sulphate soils	
	6.2. Mine site rehabilitation	
7.	Bioremediation	5.00
8.	Environmental Protection Legislation	5.00
	8.1. Philosophy (licensing vs end of pipe)	
	8.2. Qld Env Protection Act	

### **TEXT and MATERIALS required to be PURCHASED or ACCESSED**

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at <http://bookshop.usq.edu.au> click 'Semester', then enter your 'Course Code' (no spaces).

Davis, ML & Cornwell, DA 2006, *Introduction to Environmental Engineering*, 4th edn, McGraw Hill, Boston.

### **REFERENCE MATERIALS**

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Schnoor, JL 1996, *Environmental modeling: fate and transport of pollutants in water, air and soil*, J Wiley, New York.

### **STUDENT WORKLOAD REQUIREMENTS**

ACTIVITY	HOURS
Assessments	30.00
Directed Study	84.00
Examinations	2.00
Private Study	39.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg (%)	Due date
ASSIGNMENT	100.00	10.00	05 May 2009
2 HOUR OPEN EXAMINATION	900.00	90.00	END S1 (see note 1)

### NOTES

1. Student Administration will advise students of the dates of their examinations during the semester.

## IMPORTANT ASSESSMENT INFORMATION

- 1 Attendance requirements:  
There are no attendance requirements for this course. However, it is the students' responsibility to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.
- 2 Requirements for students to complete each assessment item satisfactorily:  
To satisfactorily complete an assessment item a student must achieve at least 50% of the marks or a grade of at least C-. Students do not have to satisfactorily complete each assessment item to be awarded a passing grade in this course. Refer to Statement 4 below for the requirements to receive a passing grade in this course.
- 3 Penalties for late submission of required work:  
If students submit assignments after the due date without extenuating circumstances then a penalty of 5% of the assigned mark may apply for each working day late up to a maximum of ten working days at which time a mark of zero can be recorded for that assignment.
- 4 Requirements for student to be awarded a passing grade in the course:  
To be assured of receiving a passing grade in a course a student must obtain at least 50% of the total weighted marks for the course.
- 5 Method used to combine assessment results to attain final grade:  
The final grades for students will be assigned on the basis of the weighted aggregate of the marks (or grades) obtained for each of the summative assessment items in the course.
- 6 Examination information:  
In an Open Examination, candidates may have access to any material during the examination except the following: electronic communication devices, bulky materials, devices requiring mains power and material likely to disturb other students.
- 7 Examination period when Deferred/Supplementary examinations will be held:  
Any Deferred or Supplementary examinations for this course will be held during the examination period at the end of the semester of the next offering of this course.
- 8 University Regulations:  
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL <http://www.usq.edu.au/corporateservices/calendar/part5.htm> or in the current USQ Handbook.

## ASSESSMENT NOTES

- 1 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner.
- 2 Students must retain a copy of each item submitted for assessment. This must be produced within five days if required by the Examiner.
- 3 In accordance with University's Assignment Extension Policy (Regulation 5.6.1), the examiner of a course may grant an extension of the due date of an assignment in extenuating circumstances.
- 4 The Faculty will normally only accept assessments that have been written, typed or printed on paper-based media.
- 5 The Faculty will NOT accept submission of assignments by facsimile.
- 6 Students who do not have regular access to postal services or who are otherwise disadvantaged by these regulations may be given special consideration. They should contact the examiner of the course to negotiate such special arrangements.
- 7 In the event that a due date for an assignment falls on a local public holiday in their area, such as a Show holiday, the due date for the assignment will be the next day. Students are to note on the assignment cover the date of the public holiday for the Examiner's convenience.
- 8 Students who have undertaken all of the required assessments in a course but who have failed to meet some of the specified objectives of a course within the normally prescribed time may be awarded one of the temporary grades: IM (Incomplete - Make up), IS (Incomplete - Supplementary Examination) or ISM (Incomplete -Supplementary Examination and Make up). A temporary grade will only be awarded when, in the opinion of the examiner, a student will be able to achieve the remaining objectives of the course after a period of non directed personal study.
- 9 Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded IDS (Incomplete - Deferred Examination; IDM (Incomplete Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).