Course Specification

Description: Public Health Engineering

<table>
<thead>
<tr>
<th>Subject</th>
<th>Cat-Nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
<th>Campus</th>
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<tr>
<td>ENV</td>
<td>4203</td>
<td>14629</td>
<td>2, 2002</td>
<td>WEB</td>
<td>1.00</td>
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Academic Group: FOENS
Academic Org: FOES03
HECS Band: 2
ASCED Code: 030907

STAFFING
Examiner: Ernest Yoong
Moderator: Rod Smith

PRE-REQUISITES
Pre-requisite: ENV2103 or ENV1101

SYNOPSIS
A reliable supply of potable water, an efficient system of wastewater disposal, and an effective drainage system, are essential for the health and well being of modern urban communities and of mining and isolated industrial activities. The design, installation, operation and maintenance of these facilities are traditionally the responsibility of local government engineers or consulting engineers employed by local government. To understand the principles and processes of water and wastewater treatment, there is a need to appreciate the vectors of waterborne diseases, sanitary microbiology, as well as topics in water chemistry. Environmental matters (notably solid refuse management) and legislation likely to be included in the responsibilities of a local government engineer are also included in this course.

OBJECTIVES
On completion of this course, student should be able to:

- identify the issues which are of significance to public health engineering;
- list and describe the organisms of importance in sanitary microbiology and the vectors of disease;
- explain the significance of oxygen in wastewater treatment and of the determination of oxygen demand and concentration of oxygen in water;
- describe the characteristics of water and wastewater, and explain the principles involved in the relevant water chemistry;
- calculate the water demand of a community;
• describe the sources of supply, treatment processes and distribution of water;
• describe the components and processes involved in primary, secondary and tertiary treatment of wastewater;
• compare and contrast attached growth and suspended growth treatment processes;
• design a drainage system for a small urban area;
• analyse problems in water and wastewater treatment and design the major components of treatment systems;
• describe the collection, storage, management and disposal of solid refuse;
• understand the state guidelines for water supply and sewerage schemes and have an appreciation of the relevant legislations.

TOPICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>1. Sanitary microbiology</td>
<td>6.00</td>
</tr>
<tr>
<td>2. Water chemistry</td>
<td>8.00</td>
</tr>
<tr>
<td>3. Water supply treatment and distribution</td>
<td>20.00</td>
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<tr>
<td>4. Wastewater collection and treatment</td>
<td>27.00</td>
</tr>
<tr>
<td>5. Design of water supply and wastewater treatment systems</td>
<td>18.00</td>
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<tr>
<td>6. Urban drainage design</td>
<td>15.00</td>
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<td>7. Solid waste management</td>
<td>6.00</td>
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TEXT and MATERIALS required to be PURCHASED or ACCESSED:

Books can be ordered by fax or telephone. For costs and further details use the 'Book Search' facility at http://bookshop.usq.edu.au by entering the author or title of the text.

A hand held battery operated calculator which does not have keys for the alphabet.

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.


Institution of Engineers, Australia 1998, Australian Rainfall and Runoff, Metcalf and Eddy Inc Wastewater Engineering Treatment 1991, Disposal, Reuse, 3rd edition,

STUDENT WORKLOAD REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>20</td>
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<tr>
<td>Directed Study</td>
<td>52</td>
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<td>Examinations</td>
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<td>Private Study</td>
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ASSESSMENT DETAILS

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks Out of</th>
<th>Wtg(%)</th>
<th>Required</th>
<th>Due Date</th>
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<tbody>
<tr>
<td>ASSIGNMENT 1</td>
<td>200.00</td>
<td>20.00</td>
<td>Y</td>
<td>26 Aug 2002</td>
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<td>ASSIGNMENT 2</td>
<td>100.00</td>
<td>10.00</td>
<td>Y</td>
<td>20 Sep 2002</td>
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<td>3 HOUR RESTRICTED EXAMINATION</td>
<td>700.00</td>
<td>70.00</td>
<td>Y</td>
<td>END S2</td>
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NOTES:

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

OTHER REQUIREMENTS

1. Students must achieve at least 45% of the maximum possible marks in each assessment, and at least 50% of the total marks for all assessments to complete the course successfully.

2. A minimum standard of communication skills must be demonstrated in order for a passing grade to be achieved.

3. The due date for an assignment is the date by which a student must submit the assignment to the USQ. The onus is on the student to provide proof of the submit date, if requested by the Examiner.

4. Students must retain a copy of each item submitted for assessment. This must be produced within five days if required by the Examiner.

5. 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.

6. If students submit assignments after the due date without prior approval then a penalty of up to 20% of the total marks for the assignment will apply for each working day late.

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. The Faculty of Engineering and Surveying will NOT accept submission of hand written or typed assignments by facsimile, e- mail or computer diskette. Students
in remote locations who do not have regular access to postal services may be given special consideration.

9 The final examination in this course is restricted. Any electronic calculator without text storage facility may be brought into the examination by the student.

10 Students must note the make and model of the calculator used on the front of the Answer Book or Examination Paper where applicable. This may be subject to checking by the supervisor.

11 The final grades for students will be assigned on the basis of the aggregate of the marks obtained for each of the assessments in the course.

12 The Faculty of Engineering and Surveying does not offer supplementary examinations.

13 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 the temporary grade: IM (Incomplete - Make up). An IM 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.

14 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; IDSM (Incomplete Deferred Examination and Make-up).