

<b>Institution:</b>	University of Newcastle upon Tyne
<b>Programme:</b>	BSc Environmental Science
<b>Module:</b>	Environmental Science Practice (AES274)
<b>Activity:</b>	Developing knowledge and skills related to environmental science professions
<b>Level/Year:</b>	2
<b>Learning hours</b>	100

### **Work-related learning outcome(s)**

Students will develop their knowledge of environmental science professions, and in particular:

- environmental management systems;
- sustainability and Agenda 21;
- environmental legislation;
- environmental ethics.

Students will also be able to illustrate their application in:

- waste management;
- energy generation;
- water supply and treatment;
- brownfield site development and contaminated land and water.

Other learning outcomes include:

- advanced literature search skills (including use of Endnote), and an ability to appraise the quality of information sources critically;
- the ability to write professional documents in appropriate formats for a variety of purposes (tenders and technical reports);
- the ability to make oral presentations using a variety of visual aids.

### **Description of the teaching activity which achieves the learning outcome(s)**

Lectures will provide an outline of the environmental science employment sector and identify the drivers including legislation, Agenda 21, and environmental management systems (EMAS, ISO14000). Current major employment sectors and some of the particular technical aspects governing them will be described. Ethical frameworks and environmental ethics in particular will be described in order to help the students better understand the value systems of different stakeholders.

The library workshop will consolidate students' library skills and introduce them to the use of Endnote. These skills will be used throughout the coursework.

Students' understanding will mainly be developed through the coursework exercises which will require students to engage with literature describing the environmental science employment sector and many of the activities that it involves.

The oral will give students practice in summarising a body of work and selling themselves.

### **Rationale for the selection of the teaching activity**

Research was undertaken in August and September 2001 into the requirements of employers in the environmental sector. This consisted of interviewing several representatives of environmental companies in the region. Their views were taken on the skills and knowledge

they expected of new graduates and where they thought these were lacking. The module was then redesigned in light of this information. The main development work lay in the design of assessment exercises to test module learning outcomes and to expose students continually to work-related material.

### **Assessment – approach and detail (copy of assessment sheet)**

As part of the work-related philosophy behind the module, there are no exams. However, there are five assessment exercises throughout the course which test the learning objectives:

1. The students must analyse the environmental employment market and predict the important areas for employment over the next five years. This makes the students aware of the kinds of skills that potential employers will want. It also helps them with choices for third year options and research projects. (17.5%)
2. Students must research the legislation and science behind a topical environmental story in the media. They are also expected to discuss the different ethical approaches to the problem. The aim of this assessment is to encourage independent learning and it is introduced before the library skills workshop to tie the two exercises together. (25%)
3. Students have to design a clear and informative scheme for presenting the results of a desk study for a site investigation. This is intended to be an explicit example of professional, environmental work. (17.5%)
4. The final written assessment is connected with two case studies discussed in a lecture. The students must critically appraise two environmental management schemes and identify areas where the University could improve, with a view to achieving ISO 14000 compliance. (30%)
5. Finally, there is an oral presentation session in which the students must choose one of their written reports to present orally. Their aim is to convince a client (the lecturer) that the work they have done warrants them being rehired. (10%)

All the written reports have word limits to encourage the students to be more selective about the information they include. The emphasis is on producing reports from which it should be easy and fast to extract the relevant information. The reports usually include some kind of summary. Writing commercially appropriate reports was a skill that was identified by potential employers as frequently lacking in employees who had recently left university.

### **Future developments**

There will be trials of some of the assessment material on current Level 2 students taking another module. Feedback from these students will allow the material to be reassessed before the Environmental Science Practice module begins in 2003/2004.