



## MODULE SPECIFICATION

**Code:** USSJNQ-40-2    **Title:** Energy Technologies for Climate Mitigation    **Version:** 1

**Level:** 2    **UWE credit rating:** 40    **ECTS credit rating:** 20

**Module type:** Standard

**Owning Faculty:** Health and Life Sciences    **Field:** Applied Sciences

**Faculty Committee approval:** Q&S Committee (School of Life Sciences)    **Date:** Summer 2009

**Approved for Delivery by:** N/A

**Valid from:** September 2010

**Discontinued from:**

**Pre-requisites:**

None

**Co-requisites:**

None

**Entry Requirements:**

None

**Excluded Combinations:**

None

**Learning Outcomes:**

The student will be able to:

- describe a range of energy technologies;
- compare renewable and non-renewable energy sources;
- assess various energy technologies with respect to climate mitigation and life cycle analysis;
- determine appropriate energy and fuel generation strategies for regional, national and international situations.

**Syllabus Outline:**

The module will include an overview of fossil fuels, nuclear energy and renewable energy and renewable fuel sources. Fossil fuels will include: oil, gas and coal. Nuclear energy will include both fission and fusion sources. Renewables will include tidal, geothermal, solar (heat and photovoltaic), wind, biomass, biogas, biofuels and 'blue skies' power systems. The module will include calculation of energy budgets from individual sources and the contribution to carbon saving. The module will also include socioeconomic analysis of differing energy and fuel strategies. Aspects of transmission, conversion losses, storage and supply will also be considered.

**Teaching and Learning Methods:**

Delivery of the module will include lectures, tutorials, workshops, practical classes and day visits to a variety of energy and fuel generation sites

**Reading Strategy:**

All students will be encouraged to make full use of the print and electronic resources available to them through membership of the University. These include a range of electronic journals and a wide variety of resources available through web sites and information gateways. The University Library's web pages

provide access to subject relevant resources and services, and to the library catalogue. Many resources can be accessed remotely. Students will be presented with opportunities within the curriculum to develop their information retrieval and evaluation skills in order to identify such resources effectively.

Any **essential reading** will be indicated clearly, along with the method for accessing it, e.g. students may be expected to purchase a set text, be given or sold a print study pack or be referred to texts that are available electronically, etc. This guidance will be available either in the module handbook, via the module information on Blackboard or through any other vehicle deemed appropriate by the module/programme leaders.

If **further reading** is expected, this will be indicated clearly. If specific texts are listed, a clear indication will be given regarding how to access them and, if appropriate, students will be given guidance on how to identify relevant sources for themselves, e.g. through use of bibliographical databases.

**Indicative Reading List:**

'Renewable Energy: Power for a Sustainable Future' edited by Godfrey Boyle (2004, OU/Oxford)

'Energy Systems and Sustainability: Power for a Sustainable Future' edited by Godfrey Boyle et al (2003, OU/Oxford)

'Sustainable Energy - Without the Hot Air' by David MacKay (2009, UIT Cambridge)

**Assessment:**

**Weighting between components A and B (standard modules only) A: 50% B: 50%**

**FIRST ATTEMPT**

**First Assessment Opportunity**

<b>Component A</b> ( <i>controlled</i> )		<b>Element Wt (Ratio)</b>	
Description of each element		<i>(within Component)</i>	
EX1	Examination (Semester 1, 1.5 Hours)		1
EX2	Examination (Semester 2, 1.5 Hours)	FINAL ASSESSMENT	1

<b>Component B</b>		<b>Element Wt (Ratio)</b>	
Description of each element		<i>(within Component)</i>	
CW1	Case Study (group work)		1
CW2	Practical and Reflective Portfolio		1

**Second Assessment Opportunity (further attendance at taught classes is not required)**

<b>Component A</b> ( <i>controlled</i> )		<b>Element Wt (Ratio)</b>	
Description of each element		<i>(within Component)</i>	
EX3	Examination (3 Hours)	FINAL ASSESSMENT	1

<b>Component B</b>		<b>Element Wt (Ratio)</b>	
Description of each element		<i>(within Component)</i>	
CW1	Extended Case Study		1

**SECOND (OR SUBSEQUENT) ATTEMPT Attendance at taught classes is required.**

**Specification confirmed by** .....**Date** .....  
(Associate Dean/Programme Director)