Module Registrar: Prof J A Clarke  
joy@esru.strath.ac.uk

Taught To (Course): Block release industry students

Other Lecturers Involved: none

Credit Weighting: 10

Semester: 1

Assumed Prerequisites: 1st degree in engineering or related

Compulsory class

Academic Level: 5/PG

Module Format and Delivery (hours): Delivered over a 1 week period

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Tutorial</th>
<th>Laboratory</th>
<th>Project</th>
<th>Assignments</th>
<th>Private Study</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td>42</td>
<td>34</td>
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Educational Aim

Against the background of international commitments on atmospheric emissions, diminishing fossil fuel resources and the liberalisation of energy markets, this module examines sustainable options for energy production, supply and consumption. The aim is to give students an understanding of current trends, and to enable a critical evaluation of emerging ideas, technologies and policies.

Learning Outcomes

On completion of the module, students are expected to have attained the following learning outcomes.

LO1. An appreciation of recent history and current trends in the energy sector.
LO2. An understanding of the impact energy has on the local and global environment.
LO3. The ability to undertake an evaluation of developments in energy conversion technology.
LO4. A working knowledge of legislative, economic and environmental constraints.

Syllabus

The module covers the following topics.
1. Historical trends in energy production: role of fossil fuels; nuclear power; fuel reserves.
2. Atmospheric pollution: global and local; UK and international commitments.
3. Thermal power generating plant: thermal efficiency; emissions; combined cycle plant; CHP.
4. Nuclear plant: history of technology; environmental impacts; policy issues.
5. Renewable sources: nature and extent of resources; exploitation methods; environmental impacts; costs.
7. The transport sector: fuel use and emissions; environmental impacts; options for change.
8. General policy issues: support mechanisms for renewables; CO2 stabilisation strategies; future role of nuclear power.

Assessment of Learning Outcomes

The assignments and group discussions will be used to assess learning outcomes against the following criteria.

LO1. An appreciation of recent history and current trends in the energy sector.
   C1. Ability to relate present actions in energy systems design and deployment to future requirements.

LO2. An understanding of the impact energy has on the local and global environment.
   C1. Ability to qualitatively relate technology types to impacts.

LO3. The ability to undertake an evaluation of developments in energy conversion technology.
   C1. Ability to quantitatively compare alternative technologies.

LO4. A working knowledge of legislative, economic and environmental constraints.
   C1. Ability to impose such considerations on technical outcomes when selecting viable schemes.
The standards set for each criterion per Module Learning Outcome to achieve a pass grade are indicated on the assessment sheet for all assessment.

**Principles of Assessment and Feedback**

Two assignments and group discussions will be used to gauge student progress, with feedback given in that address collective shortcomings in relation to the learning outcomes. The coursework assignments are as follows.

A2. Techno-economic assessment of a renewable energy conversion system.

<table>
<thead>
<tr>
<th>L/Outcomes</th>
<th>Examinations</th>
<th>Courseworks</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Duration</td>
<td>Weighting</td>
</tr>
<tr>
<td></td>
<td>2</td>
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</tr>
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</table>

Indicate which learning outcomes (L01, L02 etc) are to be assessed by exam/coursework/project as required.

Coursework / Submissions deadlines:

A1. 3 weeks after course completion
A2. 6 weeks after course completion

Resit Assessment Procedures:

By re-submission of coursework.

**PLEASE NOTE:**

_Students are required to gain a summative mark of 50% to pass the module. Students who fail the module at the first attempt will be required to resubmit coursework for re-examination._

**Recommended Reading**


**Additional Student Feedback**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Room No</th>
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Session: 2014/15

**Approved:**

Course Director Signature: P Strachan

Date of Last Modifications: 02 September 2014
**Module Code:** ME922  
**Module Title:** Energy Resources and Policy

**Brief Description of Assessment:**

2 coursework assignments:

C1. Commentary on an energy policy issue.
C2. Techno-economic assessment of a renewable energy conversion system.

**Assessment Timing:-**

Indicate on the table below the Start/Submission dates for each Assignment/Project and the timing of each Exam/Class Test(s).

<table>
<thead>
<tr>
<th>Semester One</th>
<th>WK1</th>
<th>WK2</th>
<th>WK3</th>
<th>WK4</th>
<th>WK5</th>
<th>WK6</th>
<th>WK7</th>
<th>WK8</th>
<th>WK9</th>
<th>WK10</th>
<th>WK11</th>
<th>WK12</th>
<th>Exam Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester Two</td>
<td>WK1</td>
<td>WK2</td>
<td>WK3</td>
<td>WK4</td>
<td>WK5</td>
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<td>WK10</td>
<td>WK11</td>
<td>WK12</td>
<td>Exam Period</td>
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