Against the background of international commitments on atmospheric emissions, diminishing fossil fuel resources, renewable energy systems deployment 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 in the energy market, and to enable a critical evaluation of emerging ideas, technologies and policies especially in relation to new and renewable energy supply systems.

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 renewable energy conversion technology.
LO4 A working knowledge of legislative, economic and environmental constraints and drivers.

Syllabus

The module will teach the following:

1. Historical trends in energy production: fossil fuels; renewable energy; nuclear power.
2. Atmospheric pollution: global and local; UK and international commitments.
3. Thermal power generating plant: efficiency; emissions; combined cycle plant; CHP.
4. Nuclear plant: history of technology; environmental impacts; policy issues.
5. Renewable energy 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. Policy issues: support mechanisms for renewables; CO₂ stabilisation strategies; role of nuclear power; demand reduction.

Assessment of Learning Outcomes

Criteria

For each of the Module Learning Outcomes the following criteria will be used to make judgements on student learning:

- 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 renewable energy conversion technology.
  - C1. Ability to quantitatively compare alternative technologies.
- LO4 A working knowledge of legislative, economic and environmental constraints and drivers.
  - 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.

12 Principles of Assessment and Feedback
(on Learning & Teaching web pages: [www.strath.ac.uk/learnteach/informationforstaff/staff/assessfeedback/12principles/](http://www.strath.ac.uk/learnteach/informationforstaff/staff/assessfeedback/12principles/))

- Formal, summative feedback will be provided by the return of examination marks to students after assessment.
- Informal feedback will be provided at weekly tutorial sessions through discussion with individuals or groups on tutorial exercises attempted in advance.
- Students will receive weekly verbal feedback in the context of group discussions with supervising staff.
- Performance in an individual assignment will be used to gauge student progress, with feedback given in group sessions that address collective shortcomings in relation to the learning outcomes. The coursework assignment comprises a techno-economic assessment of a renewable energy conversion system.

| Assessment Method(s) Including Percentage Breakdown and Duration of Exams |
|---|---|---|
| Number | Month(s) | Duration | Weighting | Number | Weighting | Number | Weighting |
| 1 | January | 2 hours | 75% | 1 | 25% | All | All |

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

Coursework / Submissions deadlines:
Week 5

Resit Assessment Procedures:
By re-examination (2 hour) in August or re-submission of assignment(s) prior to the commencement of the August examination diet, as appropriate.

PLEASE NOTE:
Students need to gain a summative mark of 50% to pass the module. Students who fail the module at the first attempt will be re-examined during the August diet. This re-examination will consist of exam or coursework as appropriate.

Recommended Reading


Additional Student Feedback

(Please specify details of when additional feedback will be provided)

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Session: 2014/15

Approved:
Course Director Signature: P Strachan

Date of Last Modifications: 02 September 2014
Module Code: ME927  Module Title: Energy Resources and Policy

Brief Description of Assessment:

Formal, summative feedback by the return of examination marks and assignment outcome plus informal feedback at group discussions and tutorials.

Assessment Timing:-

Indicate on the table below the start/submission dates for each assignment/project and the timing of each exam/assessment(s).

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