

Module Code:	7505CATSCI	Version No:	2
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Module Title:	Energy provision	Authorisation:	
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Module Leader

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Level: 7Credit Rating: 15Indicative Time Allowances (hours):

Lec	Tut	Sem	Prt		Wrk	Fld	Other	Deliv. Tot	Exam	Private Study	Tot. Learning Hours
17	0	3	10		0	0	0	30	0	120	150

Semester Delivery: (Select one only)Semester 1 Semester 2 Runs twice (S1 & S2) Year Long Summer Other Pre-requisites: n/aRecommended Prior Study: n/aCo-requisites: n/aBarred Combinations: n/aAims:

- a) Synthesise an informed understanding of the wider environmental, social benefits and limitations of the available energy provision technological options and energy reduction choices for moving towards sustainable energy provision;
- b) Form a critical appreciation of the technological aspects, functioning, practical aspects of small scale technologies, resource potential (and limitations), maintenance needs, associated carbon emissions and environmental impacts of environmentally friendly energy technologies;

- c) Comparatively appraise the above in a holistic, objective and self-reflective manner;
- d) Develop an essential understanding of the primary need for energy use reduction and how energy distribution constraints, storage, supply and demand management, efficiency improvements, market drivers, planning processes, social and cultural aspects, governmental policy and financial support mechanisms can affect the uptake of low environmental-impact energy technologies, and determine demand reductions.

Learning Outcomes:

1. Contextualise and appreciate the influences of social, political and environmental attitudes on low environmental-impact energy provision and the influence these have on energy-related planning processes;
2. Show a critical understanding of the strengths and weaknesses of sustainable energy in transformative society change and critically appraise the wider environmental impacts and carbon implications of installation, use and end of life outcomes of the listed technologies;
3. Evaluate the ethical dilemmas of problem solving and decision-making when considering energy provision, in the context of current environmental change and adaptation transformation;
4. Systematically analyse renewable (i.e. the wind, tides, sun, biomass) or sustainable (e.g. insulation, efficiency) energy management in terms of resource availability and demand trends, and critically appraise use of these sources of energy locally or at distance through grid networks.

Learning Activities:

This module will comprise a series of lectures covering and practical activities to examine energy provision technologies, supported by seminars.

For distance learners all the lectures will be available via the VLE, and students will be invited to take part in seminars to discuss relevant topics.

Outline Syllabus:

Technological aspects of low environmental-impact energy provision technologies including wind, photovoltaics, solar thermal, heat pumps and district heating, hydroelectric (including marine), biomass and biofuels, as well as technological, economic and environmental considerations related to other technologies (such as nuclear, carbon capture and storage), distribution (i.e. The Grid) will be examined, alongside storage options (such as batteries, pumped water storage), including their future potential for growth.

All of these are considered with respect to the listed low environmental-impact energy provision technologies under an adaptation transformation planning ethos, including resource availability constraints and limitations, policy and economics issues (using UK for exemplar), planning, social and legislative aspects of energy provision, energy security and wider intermittency potential, environmental impacts, waste implications and sustainability limits of low environmental-impact technologies.

Assessment Details:

1. Coursework: Essay (2,000 word max). 67%
2. Coursework: Individual 15-minute presentation (1000 words equivalent). 33%

Weighting between E and CW: 0% 100%

Relationship between learning outcomes and assessment tasks:

	Learning Outcomes			
	1	2	3	4
Component 1	X	X	X	X
Component 2		X	X	X

Minimum Pass Mark (%): 50

Module Notes:

This module will be available onsite and via distance learning.