Module Proforma

Approved, 2022.01

Summary Information

Module Code	7505CATSCI
Formal Module Title	Energy Provision
Owning School	Biological and Environmental Sciences
Career	Postgraduate Taught
Credits	15
Academic level	FHEQ Level 7
Grading Schema	50

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Colm Bowe	Yes	N/A

Module Team Member

Contact Name	Applies to all offerings	Offerings

Partner Module Team

Contact Name	Applies to all offerings	Offerings

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
Centre for Alternative Technology

Learning Methods

Learning Method Type	Hours
Lecture	17
Practical	10
Seminar	3

Module Offering(s)

Offering Code	Location	Start Month	Duration
JAN-PAR	PAR	January	12 Weeks

Aims and Outcomes

Aims	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 provisionb) 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

After completing the module the student should be able to:

Code	Description
MLO1	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
MLO2	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;

MLO3	Evaluate the ethical dilemmas of problem solving and decision-making when considering energy provision, in the context of current environmental change and adaptation transformation;
MLO4	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.

Module Content

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.

Module Overview

Additional Information
This module will be available onsite and via distance learning.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Report	2000 word essay	67	0	MLO4, MLO2, MLO1, MLO3
Presentation	Individual Presentation	33	0	MLO4, MLO2, MLO3