Module Proforma

Approved, 2022.02

Summary Information

Module Code	5564NCCG
Formal Module Title	Renewable Energy
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Graham Sherwood	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
Nelson and Colne College Group

Learning Methods

Learning Method Type	Hours
Lecture	48

Module Offering(s)

Offering Code	Location	Start Month	Duration
SEP-PAR	PAR	September	28 Weeks

Aims and Outcomes

Aims	The module aims to present and assess key renewable energy technologies and give awareness of engineering design and development of these emerging technologies. The module will provide students will the understanding of science, engineering and deployment of renewable energy. This will include a brief historical overview of the energy landscape, before focusing onto the main sources of renewable energy such as solar, hydrogen, wind, wave, hydro, biomass, tidal and geothermal energy. The scale and magnitude of the resource are considered, and the variety of technologies available to harvest and employ that energy resource are examined. Starting with a brief outline of existing and proposed renewable energy systems, the module adopts an active solution-seeking approach, assessing these technologies against economic, engineering and other criteria as well.

Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Demonstrate comprehensive understanding of renewable energy technologies in relation to various scenarios.
MLO2	Demonstrate an appreciation of the socio-economic issues and magnitude of resource available for main renewable energy source.
MLO3	Implement mathematical, scientific and engineering ideas to form a justified and rigorous solution.
MLO4	Apply appropriate renewable energy technology or combination of renewable energy technologies to provide energy to a remote site.
MLO5	Communicate analysed solutions clearly (associated with relevant case studies) in written and verbal form to specialist and non-specialist audiences.

Module Content

Outline Syllabus
• Historic and current energy landscape.• Principles of renewable energy and related technologies.• Solar energy.• Wind energy.• Wave energy.• Tidal energy.• Hydro energy.• Hydrogen fuel cells.• Biomass energy.• Geothermal energy. • Energy systems: integration, distribution and storage. • Economic, social, environmental and regulatory policies for renewable energy and related technologies.

Module Overview

Additional Information

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Report	Seminar Paper	75	0	MLO2, MLO1
Presentation	Individual presentation	25	0	MLO5, MLO3, MLO4