Module Proforma

Approved, 2022.02

Summary Information

Module Code	7304BEUG
Formal Module Title	Energy Engineering and Environment
Owning School	Civil Engineering and Built Environment
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Laurence Brady	Yes	N/A

Module Team Member

Contact Name	Applies to all offerings	Offerings
Jeffrey Cullen	Yes	N/A
Muhammad Ahmad	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings

Teaching Responsibility

LJMU Schools involved in Delivery
Civil Engineering and Built Environment

Learning Methods

Learning Method Type	Hours
Lecture	20
Tutorial	20

Module Offering(s)

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

Aims and Outcomes

Aims	To evaluate how the concept of sustainable development is incorporated into practical design strategies for buildings.To appreciate the role of sustainable energy management in the built environment, and to critically evaluate various methods of managing energy use for sustainable development.

Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Explain how sustainable development is defined and analyse its implications for building design practice for commercial, industrial and residential developments.
MLO2	Examine the practicalities and implications of zero carbon building design and analyse current practice for commercial, industrial and residential development, with particular regard to the technique of building energy modelling
MLO3	Evaluate energy use in recent history and investigate how strategies for future energy sources relate to low and zero carbon technologies
MLO4	Investigate the energy performance of mechanical and electrical building services engineering systems specified in a range of building types.
MLO5	Investigate and critically appraise established techniques of generating energy, contrasting these with the range of renewable and low & zero carbon energy generating technologies available and emerging.

Module Content

Outline Syllabus
Building requirements and constraints, building performance ambitions. Statutory and non-statutory regulations, design guidance, environmental assessment methods, environmental management plans. Building Design: Layout, structure, envelope construction and performance, orientation and glazing. Internal and external environmental design conditions: heating, lighting ventilation. Sustainable and renewable material specifications. Low and zero carbon technologies. Building energy monitoring. Energy consumption in buildings and the wider environments: common and innovative methods of managing and minimising energy consumption. Current energy demands of the built and wider environments: prediction of future energy demands; prediction of future energy resources from conventional and renewable sources.

Module Overview
This module evaluates how the concept of sustainable development is incorporated into practical design strategies for buildings. You will learn to appreciate the role of sustainable energy management in the built environment, and to critically evaluate various methods of managing energy use for sustainable development.

Additional Information
This module allows the student to critically analyse and evaluate the implications of design decisions on the environmental performance of buildings.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Report	Report	40	0	MLO3, MLO1, MLO4, MLO2, MLO5
Centralised Exam	Examination	60	2	MLO3, MLO1, MLO4, MLO2, MLO5