

### Summary Information

Module Code	7200BEUG
Formal Module Title	Energy and Environment
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

### 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)

Display Name	Location	Start Month	Duration Number Duration Unit
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.
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**After completing the module the student should be able to:**

**Learning Outcomes**

Code	Number	Description
MLO1	1	Explain how sustainable development is defined and analyse its implications for building design practice for commercial, industrial and residential developments.
MLO2	2	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	3	Evaluate energy use in recent history and investigate how strategies for future energy sources relate to low and zero carbon technologies
MLO4	4	Investigate the energy performance of mechanical and electrical building services engineering systems specified in a range of building types.
MLO5	5	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	The design development process and integrated working. Building requirements and constraints, building performance ambitions. 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. Building simulation modelling of design proposals. 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; building energy modelling using specialist software; environmental management plans; 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	
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)	Module Learning Outcome Mapping
Report	Report	50	0	MLO1, MLO2, MLO3
Centralised Exam	Examination	50	2	MLO3, MLO4, MLO5

**Module Contacts**

**Module Leader**

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

**Partner Module Team**

Contact Name	Applies to all offerings	Offerings
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