

# Conventional and Alternative Energy Systems

## Module Information

2022.01, Approved

### Summary Information

Module Code	7108MECH
Formal Module Title	Conventional and Alternative Energy Systems
Owning School	Engineering
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

### Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

### Learning Methods

Learning Method Type	Hours
Lecture	22
Tutorial	11

### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

### Aims and Outcomes

Aims	The aim of this module is to provide a comprehensive introduction to alternative and conventional power generation systems in the context of the UK energy distribution systems and associate energy markets. The module will review the major issues associated with power generation and look in depth at selected alternative and conventional power generation techniques. The problems of energy supply and energy security will be explored.
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**After completing the module the student should be able to:**

### Learning Outcomes

Code	Number	Description
MLO1	1	Discuss the need for renewable energy power generation methods in terms of process, potential, environmental need and legislative fulfilment.
MLO2	2	Discuss conventional energy generation systems in terms of process, environmental compliance and legislative requirements.
MLO3	3	Evaluate the performance of energy generation system by simulation and modelling.
MLO4	4	Analyse global energy markets focusing on security of energy supply

### Module Content

Outline Syllabus	General discussion surrounding global warming. Review and question the UK's renewable energy policy. Wind turbine - types, design, wind data collection/analysis, energy yield prediction. Design of P-V power systems and evaluate performance characteristics by simulation. UK national grid power distribution system and discussion of connection issues. UK energy market. Review of the UK nuclear energy industry. Conventional power generation plants including coal, oil, gas (CCGT) Benefits and application of CHP Pollution abatement techniques Energy storage Security of energy supplies
Module Overview	The aim of this module is to provide a introduction to alternative and conventional power generation systems in the context of the UK energy distribution systems and associate energy markets. The module will review the major issues associated with power generation and the problems of energy supply and energy security will be explored.
Additional Information	This module principally aims to provide a relatively detailed insight into the spectrum alternative and conventional methods of power generation including associated issues such as global warming and connecting to the national grid system.

### Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Portfolio	Portfolio	100	0	MLO1, MLO2, MLO3, MLO4

### Module Contacts

#### Module Leader

Contact Name	Applies to all offerings	Offerings
Ava Shahrokhi	Yes	N/A

#### Partner Module Team

Contact Name	Applies to all offerings	Offerings
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