

Liverpool John Moores University

Title: ENERGY CONVERSION AND UTILISATION
Status: Definitive
Code: **6025TECH** (105443)
Version Start Date: 01-08-2016

Owning School/Faculty: Maritime and Mechanical Engineering
Teaching School/Faculty: Maritime and Mechanical Engineering

Team	Leader
Geraint Phylip-Jones	Y

Academic Level: FHEQ6
Credit Value: 12
Total Delivered Hours: 50
Total Learning Hours: 120
Private Study: 70

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	24
Seminar	12
Tutorial	12

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	60	2
Essay	AS2	case study	20	
Essay	AS3	case study	20	

Aims

This module offers a quantitative and technologically based discussion of the advantages and limitations of 'natural' energy sources and the technologies involved in exploiting them for energy supply. Both grid-connected and stand-alone applications are considered. There is a brief but quantitative discussion of energy efficiency in end-use. The module concentrates on electrical engineering aspects of

the various technologies, and on the availability of energy sources. Civil engineering and environmental issues are looked at, but only briefly.

Learning Outcomes

After completing the module the student should be able to:

- 1 Select energy sources and technologies appropriate to a specified end-use application.
- 2 Calculate expected energy and power output
- 3 Specify the electrical engineering requirements of grid connection where appropriate.
- 4 Calculate improvements of energy efficiency in end use.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

EXAM	1	2	3	4
CW	1	2	3	
CW	4			

Outline Syllabus

Wind power systems, solar photovoltaic and thermal systems, hydro-electricity and pumped storage, tidal energy, wave energy, energy efficiency.

Learning Activities

Lectures and case studies.

Notes

This module places natural energy and energy efficiency in a context of quantitative engineering design and practice.