

## Liverpool John Moores University

Title: ENERGY SCIENCE AND APPLICATIONS  
Status: Definitive  
Code: **4506ICBTME** (127033)  
Version Start Date: 01-08-2021

Owning School/Faculty: Engineering  
Teaching School/Faculty: ICBT, Colombo

Team	Leader
Alison Cotgrave	Y

**Academic Level:** FHEQ4      **Credit Value:** 15      **Total Delivered Hours:** 74  
**Total Learning Hours:** 150      **Private Study:** 76

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	45
Off Site	6
Seminar	6
Tutorial	15

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Coursework (1500 Words)	30	
Exam	AS2	Exam	70	2

### Aims

*This unit aims to investigate energy management principles and techniques. The principal aim of this unit is to establish and develop understanding of energy science and its applications in industry context and to develop the ability to carry out an energy audit in the context of a plant engineering environment independently.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Appraise different types of energy sources and characterise appropriate energy sources and conversion technologies.
- 2 Recognise environmental impact of different energy sources.
- 3 Calculate basic parameters of energy conservation mechanical systems.
- 4 Explain the concepts of energy audit and energy management.

## Learning Outcomes of Assessments

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

Coursework	2		
Exam	1	3	4

## Outline Syllabus

*Efficient energy use and economic growth of a country*

*Common energy sources (Fossil, Mineral, Solar, Wind, Small hydro, Biomass, Geothermal and Wave)*

*Environmental impact of above energy sources in extraction, use and disposal*

*Energy conservation in thermal systems, electrical systems, fluid machinery and in construction*

*Energy audit procedure and standards*

*Energy management*

## Learning Activities

Students will be supported in their learning, to achieve the above learning outcomes, in the following ways:

By a series of lectures and tutorials and through participation within laboratory practical sessions for problem solving.

A recommended resource list - indicating key reading, internet support and physical learning assistance, is provided to help enable students to undertake self-directed study.

## Notes

