

MMF111 - Introduction to Engineering Science: Energy and Power Module Specification

Principally taught by	Wolfson School of Mechanical & Manufacturing Engineering
Modular weight	10
ECTS Credit	5
Credit Level	3
Exam weighting	70
SAP Restriction	Module is available to any student meeting pre-requisites, but numbers will be restricted and priority will be given to students for whom the module is listed in their Programme Regulations.
Prerequisite modules	
Availability	Semester 2
Responsible Examiner	
Delivery Period	10

1. Aims and Summary

The aims of this module are to:

To explore fundamental principles of power generation and utilisation through the application of science.

2. Intended Learning Outcomes

On completion of this module students should be able to:

(1) Knowledge and Understanding

- On completion of this module students should have a knowledge and understanding of approaches to the production, transmission and utilisation of power and energy through engineering applications.

(2) Skills

Skills and Attributes

- (i) On completion of this module students should be able to describe a number of fundamental engineering systems, how they work and the scientific principles that underpin them. They should be able to solve simple problems associated with the systems and carry out routine calculations.
- (ii) On completion of this module students should be able to conduct and analyse data from a simple laboratory experiment..

3. Indicative Content

- Thermodynamic cycles and the Internal Combustion Engine
- Electricity generation and Electric motors
- Introduction to mechanical power transmission, levers, shafts, gears, belts and hydraulic multiplication.
- Aircraft, Thrust lift and drag.
- Introduction to feedback control.

4. Lecture Plan

Week	Beginning	Lecture plan	Notes / support session	Lecturer
1	03.02.13			FGL
2	10.02.13			FGL
3	17.02.13			FGL
4	24.02.13			FGL
5	03.03.13			FGL
6	10.03.13			FGL
7	17.03.13			FGL
8	24.03.13			FGL
9	28.04.13			FGL
10	05.05.13			FGL
11	12.05.13			FGL
12	19.05.13			FGL

5. Essential Reading

Course notes and on-line resources

6. Teaching and Learning

Activity Type	Hours	Comments
Practical classes and workshops	2	
Tutorial	-	
Lecture	22	
Guided independent study	76	
TOTAL	100	

- Comprising 22 hours lectures and tutorials and a 2-hour practical exercises.

7. Assessment

Assessment Title	Weight	Assessment Type	Exam Semester	Exam length
Coursework	30%	Coursework		
Exam 1	70%	Exam	2	1.5 hrs
TOTAL	100%			

Assessment is through an assignment report (30%) and a 1.5 hour unseen examination (70%).

8. Method of Feedback

- 1. Feedback given to students in response to assessed work**
Individual written feedback on coursework;
Model answers.
- 2. Developmental feedback generated through teaching activities**
Dialogue between students and staff in tutorials.

9. Recommended Reading

- CLIFFORD, Michael., 2009. *An introduction to mechanical engineering. Part 1.* Hodder Education.
- JOHNSON, Anthony, Sherwin, Keith., 2001. *Foundations of mechanical engineering.* Nelson Thornes..