

Liverpool John Moores University

Title: THERMODYNAMICS AND FLUID MECHANICS
Status: Definitive
Code: **4022ENG** (105466)
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: FHEQ4 **Credit Value:** 12 **Total Delivered Hours:** 26
Total Learning Hours: 120 **Private Study:** 94

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	14
Practical	4
Tutorial	6

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	70	2
Essay	AS2	laboratory report	15	
Essay	AS3	calculation assignment	15	

Aims

To introduce the student to the fundamental concepts of Thermodynamics and Fluid Mechanics and their application to engineering problems.

Learning Outcomes

After completing the module the student should be able to:

- 1 Examine thermodynamic processes involving ideal gases and vapours in closed and open systems and calculate work and heat transfers
- 2 Use property tables and charts for vapours
- 3 Solve problems in hydrostatics
- 4 Solve problems in ideal steady fluid flows

Learning Outcomes of Assessments

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

EXAM	1	2	3	4
CW	1	2		
CW	3	4		

Outline Syllabus

Thermodynamic definitions

The First Law of Thermodynamics

Non-Flow and Steady Flow Energy Equation

Properties of Gases and Vapours

Non-Flow processes and Steady Flow processes for gases and vapours

Mixtures of gases

Properties of Fluids

Hydrostatic Equation, Manometry

Continuity, Bernoulli and Momentum equations

Learning Activities

Combination of lectures, tutorials and laboratories.

Notes

This module is designed to provide an introduction to the subjects of Thermodynamics, Fluid Mechanics and Heat Transfer.