

## Liverpool John Moores University

Title: THERMODYNAMICS & FLUID MECHANICS  
Status: Definitive  
Code: **4516ENGIOM** (117234)  
Version Start Date: 01-08-2016

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

Team	Leader
Russell English	Y

**Academic Level:** FHEQ4  
**Credit Value:** 10  
**Total Delivered Hours:** 26  
**Total Learning Hours:** 100  
**Private Study:** 74

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	18
Tutorial	6

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam		50	2
Essay	Essay		25	
Essay	Essay		25	

### 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 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
Essay 1	1	2		
Essay 2	3	4		

### **Outline Syllabus**

*Thermodynamic definitions*

*The First Law of Thermodynamics*

*Non-Flow and Steady Flow Energy Equation*

*Properties of Gases.*

*Non-Flow processes and Steady Flow processes for gases.*

*Properties of Fluids*

*Hydrostatic Equation*

*Manometry*

*Continuity, Bernoulli and Momentum equations*

*Hydrostatic forces.*

### **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.