

## Liverpool John Moores University

Title: HEAT TRANSFER AND COMBUSTION  
Status: Definitive  
Code: **5504ICBTME** (127061)  
Version Start Date: 01-08-2021

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

Team	Leader
Alison Cotgrave	Y

**Academic Level:** FHEQ5  
**Credit Value:** 15  
**Total Delivered Hours:** 65  
**Total Learning Hours:** 150  
**Private Study:** 85

### Delivery Options

Course typically offered: S2 and Non Std S2 (S2 for Jan)

Component	Contact Hours
Lecture	45
Practical	3
Tutorial	15

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	60	2
Essay	AS2	Assignment (2000 words)	40	

### Aims

*This unit will develop understanding of heat transfer principles and empirical relationships enabling them to solve practical problems involving heat transfer, combustion and the specification of practical engineering equipment.*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Understand the governing concepts of heat transfer and combustion systems.
- 2 Analyse the basic principles and mechanisms of heat transfer and combustion process and carry out problem solving tasks on simple and real systems.
- 3 Relate the theoretical concepts to practical scenarios.
- 4 Design/evaluate the performance of a heat transfer/combustion system.

### **Learning Outcomes of Assessments**

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

Examination	1	2
Assignment	3	4

### **Outline Syllabus**

*Laws of thermodynamics and applications for heat transfer systems*

*Heat transfer mechanisms and coefficients*

*Conduction analysis*

*Convection analysis*

*Boiling and condensation*

*Thermal radiation*

*Heat exchangers*

*Combustion chemistry, energy and products of combustion*

### **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 practical knowledge

Self-managed investigative study to analyse cases related to heat transfer and design

In-class participation and case studies are key features of this module

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**

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