

Summary Information

Module Code	6108MECH
Formal Module Title	Fluid Dynamics and Heat Transfer
Owning School	Engineering
Career	Undergraduate
Credits	10
Academic level	FHEQ Level 6
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	11
Online	11
Practical	6
Tutorial	11

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	To further develop the essential principles of Fluid Dynamics and Heat Transfer
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Solve practical fluid flow problems
MLO2	2	Predict lift and drag forces associated with external flows
MLO3	3	Analyse heat transfer phenomena
MLO4	4	Evaluate heat exchanger performance using standard techniques

Module Content

Outline Syllabus	Governing equations of viscous flow. Navier –Stokes and Continuity Equations. Prantl boundary layer equation, Blasius solution and simplified working relationships. VonKarman momentum integral and turbulent boundary layers structure. Streamline and bluff bodies, lift and drag coefficients, boundary layer separation and wake, wind tunnel testing. Analytical and numerical methods applied to multi-mode heat transfer problems including radiation, conduction and convection. Heat Exchanger analysis including Log means temperature difference (LMTD), Heat exchanger effectiveness method (NTU).
Module Overview	The aim of this module is to further develop the essential principles of Fluid Dynamics and Heat Transfer.
Additional Information	This module takes an in-depth look into the governing equation and theory of the complex area of fluid flow and heat transfer. The underpinning ideas are delivered by lectures and tutorials which requires the student to have a fundamental understanding of the principles and how to apply them to practical situations.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Examination	70	2	MLO1, MLO2, MLO3, MLO4
Portfolio	Portfolio	30	0	MLO1, MLO2, MLO3, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Mehdi Seddighi	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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