

This is archived information. Please visit <http://www.maths.manchester.ac.uk> for current course unit information

MATH20502

Fluid Mechanics

Unit code:	MATH20502
Credit Rating:	10
Unit level:	Level 2
Teaching period(s):	Semester 2
Offered by	School of Mathematics
Available as a free choice unit?:	N

Requisites

None

Overview

The primary aim of this course unit is to provide students with a first introduction to continuum mechanics in general and theoretical fluid mechanics in particular. The material provides the student with an essential background to many third and fourth level courses on physical applied mathematics.

Fluid mechanics is concerned with understanding, and hence predicting, the properties (pressure, density, velocity etc.) of liquids and gases under external forces. This subject provides one of the major modern areas for the successful practical application of mathematics. Water, blood, air are all examples of fluids; of the many diverse fields where an understanding of the motion of fluids is important, one can mention oceanography and meteorology (in particular the dynamics of ocean circulation and weather forecasting), biological fluid dynamics (for example, blood flows through arteries), and aerodynamics.

The main physical focus is to calculate the lift forces on a body moving in a fluid, e.g. an aeroplane wing, and it is demonstrated briefly how such forces lead to the behaviour of footballs, cricket balls, golf balls, frisbees, aerobies, boomerangs, etc.

Assessment methods

- Other - 35%
- Written exam - 65%

Assessment Further Information

- Coursework; Weighting within unit 35%
- 2 hours end of semester examination; Weighting within unit 65%

Learning outcomes

Future topics requiring this course unit

Third and fourth level course units in Fluid Mechanics.

Feedback methods

Tutorials will provide an opportunity for students' work to be discussed and to provide feedback on their understanding.

Study hours

- Lectures - 22 hours
- Tutorials - 11 hours
- Independent study hours - 67 hours

Teaching staff

Michael Simon - Unit coordinator