

Liverpool John Moores University

Title: Applied Maths
Status: Definitive
Code: **3512IFYSP** (119750)
Version Start Date: 01-08-2017

Owning School/Faculty: Academic Portfolio
Teaching School/Faculty: Academic Portfolio

Team	Leader
Kamila Tomczak	Y

Academic Level: FHEQ3 **Credit Value:** 24 **Total Delivered Hours:** 121.5
Total Learning Hours: 240 **Private Study:** 118.5

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	60
Seminar	30
Tutorial	10
Workshop	20

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	1000 word investigative data report	50	
Exam	AS2	Exam	50	1.5

Aims

To introduce the relationships between forces, linear motion and energy and the conditions for static equilibrium of a body.

To develop students' understanding of mathematical modelling of force

combinations, non-linear motion and non-uniform motion related to varying forces.

To enable students to practise the application of theory to practise.

To develop independent study skills in preparation for progression to Engineering programmes.

Learning Outcomes

After completing the module the student should be able to:

- 1 Understand and apply the relationships between distance, time, velocity and acceleration for linear motion.
- 2 Understand that forces have lines of action and be able to solve problems involving parallel forces, moments and couples as well as systems involving multiple combined forces.
- 3 Use vector methods in simple applications, in particular the use of vector versions of position, velocity and acceleration and their relationships through differentiation and integration.
- 4 Investigate the motion and forces on a particle moving along a circular path, including uniform circular motion, simple harmonic motion and vertical circular motion.

Learning Outcomes of Assessments

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

Report	1	4
Exam	2	3

Outline Syllabus

Vectors

Vector Methods

Forces as fixed vectors

Forces and Equilibrium

Relative Motion

Newton's Law's of Motion

Friction – Hooke's Law

Work, Energy and Power

Centres of gravity/ centres of Mass

Particle Dynamics

Learning Activities

Lectures and workshops will comprise didactic teaching alongside continuous formative assessments such as in-class tests and problem-solving scenarios.

Homework will support these activities, and should guide the student towards the development of self-study.

Notes

None