

Liverpool John Moores University

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Title: College Physics 1
Status: Definitive
Code: **3104CIT** (125324)
Version Start Date: 01-08-2020

Owning School/Faculty: Engineering
Teaching School/Faculty: Changshu Institute of Technology

Team	Leader
Clifford Mayhew	Y

Academic Level: FHEQ3 **Credit Value:** 20 **Total Delivered Hours:** 82
Total Learning Hours: 200 **Private Study:** 118

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	64
Tutorial	16

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	60	2
Report	AS2	Report	40	

Aims

The aim of this module is to provide students who may not have studied A-level physics with the prerequisite knowledge regarding mechanics, materials and waves which is required to go on to study for an engineering or technology degree.

Learning Outcomes

After completing the module the student should be able to:

- 1 Apply their knowledge of force, energy and momentum to analyse the behaviour of simple mechanical systems
- 2 Demonstrate an understanding of the properties of materials, and apply the equations that describe their characteristics.
- 3 Describe the general properties of longitudinal and transverse waves in different media, and apply the governing equations to simple applications.
- 4 Use the basic principles of thermal physics and the concept of energy in the conversion of thermal processes, to derive and apply the basic equations of these principles.

Learning Outcomes of Assessments

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

End of year examination	1	2	3
In-class test	2	3	4

Outline Syllabus

(i) Particle kinematics

- *introduction*
- *Particle movement description of the displacement, speed, acceleration and other concepts*
- *Velocity, tangential and normal acceleration in plane motion*
- *Application of Calculus to Solve Simple Kinematic Problems*

(ii) Particle dynamics

- *Newton 's Three Major Laws of Motion Selection statement*
- *The cumulative effect of force on time in mass and particle*
- *Cumulative effect of force on space in particle and particle*

(iii) Rigid body rotation

- *Rigid body rotational kinematics*
- *Rigid body rotation dynamics*

(iv) Mechanical vibration and mechanical waves

- *Mechanical vibration*
- *Mechanical waves*

(v) Gas dynamic theory

- *Preheat knowledge*
- *The statistical law of equilibrium state*

(vi) *Thermodynamics foundation*

- *First law of thermodynamics*
- *The second law of thermodynamics*

Learning Activities

A combination of series of lectures with some laboratory activities

Notes

This module provides a basis physics of mechanics, materials and waves for level three students to analyze simple mechanical systems.

For each topic area of the syllabus, relevant typical experiments will be provided.

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