

Module code: MOD008112	Version: 3 Date Amended: 06/Jun/2022
1. Module Title	
Physics for Engineers	

# 2a. Module Leader

Alexander Hassan

2b. School

SE: ARU College

## 2c. Faculty

Faculty of Science and Engineering

**3a. Level** 

# 3b. Module Type

Standard (fine graded)

a. Credits	
5	

4b. Study Hours	
150	

5. Restrictions				
Туре	Module Code	Module Name	Condition	
Pre-requisite:	MOD008106	Maths for Scientists	Compulsory	
Co-requisites:	None			
Exclusions:	None			
Courses to which this module is restricted:				

### 6a. Module Description

This module will give you a suitable grounding in the physical sciences in order to prepare you for your level 4 studies on the Engineering/ Computing pathways.

You will be taught using a combination of lectures, demonstrations and in-class exercises, you will also be assisted by online resources. Concepts will be introduced to you via online resources and re-capped in lectures, along with simple demonstrations and tasks. You will then complete numerical problems relating to the topic.

By the end of this module, you will be able to analyse the motion of objects in 1 and 2 dimensions with constant acceleration. You will be familiar with friction and its effect in moving and static systems. You will also be familiar with simple statically determinant systems and able to calculate forces in equilibrium. Furthermore, you will be familiar with the concepts of conservation of mechanical energy and conservation of momentum, and will be able to apply them to simple situations.

6b. Outline Content
Kinematics in 1D and 2D
Newton's Laws
Friction
Statics
Conservation of Mechanical Energy
Momentum and collisions in 1D

#### 6c. Key Texts/Literature

The reading list to support this module is available at: https://readinglists.aru.ac.uk/

#### 6d. Specialist Learning Resources

None

7. Learning Outcomes (threshold standards)				
No.	Туре	On successful completion of this module the student will be expected to be able to:		
1	Knowledge and Understanding	Understand the basic principles of classical mechanics		
2	Knowledge and Understanding	Give examples of how the engineering and computer sciences are underpinned by physical laws and concepts		
3	Intellectual, practical, affective and transferrable skills	Understand and perform simple practical experiments and relate these to the theory		
4	Intellectual, practical, affective and transferrable skills	Display and apply appropriate levels of numeracy in solving problems of physical principles in engineering and computer science		

8a. Module Occurrence to which this MDF Refers				
Year Occurrence Period		Period	Location	Mode of Delivery
2023/4	F01CAM	Trimester 1	ARU Cambridge Campus	Face to Face

8b. Learning Activities for the above Module Occurrence				
Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments	
Lectures	0	NA	NA	
Other teacher managed learning	48	1-4	4 hours per week x 12 teaching weeks	
Student managed learning	102	1-4	Pre and post session preparation, reading and research. Other tasks as detailed in module guide	
TOTAL:	150			

9. Assessment for the above Module Occurrence					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1234	50 (%)	Fine Grade	30 (%)
Practical Worksheet (up to 1500 words)					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Coursework	1234	50 (%)	Fine Grade	30 (%)
In-class Test (up to 1.5 hours)					

In order to pass this module, students are required to achieve an overall mark of 40%.

In addition, students are required to:

(a) achieve the qualifying mark for each element of fine graded assessment of as specified above

(b) pass any pass/fail elements