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
3

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

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

LEARNING, TEACHING AND ASSESSMENT INFORMATION

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.	Type	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	Location	Mode of Delivery
2025/6	ZZF	Template For Face To Face Learning Delivery		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	1 2 3 4	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	1 2 3 4	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% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment as specified above
(b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]