



Physics I for Science and Engineering with Lab Course Descriptor

Course Title	Physics I for Science and Engineering with Lab	Discipline	Natural Sciences
Course Code	LPHYS4115	US Credits	5
Credit Points	20	Date Approved	June 2022
FHEQ Level	4		
Core Attributes	Engaging with the Natural and Designed World (ND) Analysing and Using Data (AD)		
Pre-Requisites	LMATH4204 Mathematical Methods I		
Co-Requisites	LMATH4118 Mathematical Methods II		

Course Summary

This course focuses on the study of mechanics, including descriptions of motion (one-, two- and three-dimensional), Newton's Laws, conservation of energy and momentum, rotation of rigid bodies, fluids, oscillations, and static equilibrium. These topics are reinforced with lab sessions.

Course Aims

- Define and analyse the concepts of Newtonian mechanics, conservation of energy & momentum and fluid dynamics.
- Develop mathematical skills in order to solve physics related problems.
- Perform and interpret the results of simple laboratory experiments and demonstrations of physical principles.

Learning Outcomes

On successful completion of the course, students will be able to:

Knowledge and Understanding

K1a – Demonstrate an understanding of introductory physics theory.

K2a – Demonstrate a fundamental understanding of the application of physics.

Subject Specific Skills

S1a – Demonstrate the ability to perform and analyse simple physics experiments

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S2a - Demonstrate an ability to solve basic physics problems.

Transferable and Professional Skills

T1a – Demonstrate the ability of problem solving to a wide array of tasks.

T2a – Demonstrate the ability to perform evidence-based decision making.

T3a - Display a developing technical proficiency in written English and an ability to communicate clearly and accurately in structured and coherent pieces of writing.

Teaching and Learning

Teaching and learning strategies for this course will include:

A minimum of 50 contact hours, typically to include interactive group teaching, co-curriculars, individual meetings, in-class presentations, lab-based experiments and exams.

Course information and supplementary materials are available on the University's Virtual Learning Environment (VLE).

Students will receive individualised developmental feedback on their work for this course.

Students are required to attend and participate in all the formal and timetabled sessions for this course. Students are also expected to manage their directed learning and independent study in support of the course.

Assessment

Formative

Students will be formatively assessed in class through class activities, and during office hours. Formative assessments are ones that do not count towards the final grade but will provide students with developmental feedback.

Summative

AE:	Assessment Activity	Weighting (%)	Online submission	Duration	Length
1	Written Examination	10	No	1hr 45min	N/A
2	Written Examination	40	No	1hr 45min	N/A
3	Set Exercises	15	Yes	15-25 hours to complete	N/A
4	Written assignments	35	Yes		4000 Words

Further information on the structure of summative assessment elements can be found in the Summative Assessment Briefs.

Feedback

Students will receive feedback in a variety of ways: written (including via email correspondence); oral (within office hours or on an *ad hoc* basis) and indirectly through class discussion.

Feedback on examinations is provided through generic internal examiners' reports and are made available to the student on the VLE.

For all other summative assessment methods, feedback is made available to the student either via email, the VLE or another appropriate method.

Indicative Reading

Note: Comprehensive and current reading lists for courses are produced annually in the Course Syllabus or other documentation provided to students; the indicative reading list provided below is used as part of the approval/modification process only.

Books

- Randal Knight, Physics for Scientists and Engineers: A Strategic Approach with Modern Physics, Global Edition, 5th Edition
- Young & Freedman, University Physics with Modern Physics, 15th Edition

Electronic Resources

- Pearson Mastering Physics VLE

Indicative Topics

- Newtonian Mechanics
- Conservation of Energy & Momentum
- Fluid Dynamics

Title: LPHYS4115 Physics I for Science and Engineering with Lab Course Descriptor					
Approved by: Academic Board					
Location: Academic Handbook/Programme specifications and Handbooks/					
Version Number	Date Approved	Date Published	Owner	Proposed Next Review Date	Modification (As per AQF4) & Category Number
2.0	October 2022	January 2023	Dr Michael Peplar	June 2027	Category 1: Corrections/clarifications to documents which do not change approved content. Category 3: Changes to Learning Outcomes
1.0	June 2022	August 2022	Dr Michael Peplar	June 2027	