

WESTERN SYDNEY
UNIVERSITY



The College

FOUNDATION PHYSICS 1

900079

2021



UNIT OUTLINE

Last amended:	January 2021
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Unit name	Foundation Physics 1
Unit number	900079
Coordinator	Ben Kelley
Session	2021.1
Handbook summary	This unit provides a brief introduction to the essentials of physics. This unit is focused on the skills and knowledge that are needed by students from a variety of science, construction and engineering courses in their first year of study. The content covers introductory topics in mechanics, energy and power, electricity, and waves.
Credit point value	10
Prerequisite/s	N/A
Corequisite/	N/A
Unit incompatible with and not to be counted for credit with	N/A
Assumed knowledge	Year 10 Mathematics and Science or equivalent
Unit level	Level Z — Non-award preparatory unit
Attendance requirements	Students are expected to attend at least 80% of classes. Educational research consistently demonstrates that this attendance level is associated with a high likelihood of achieving a passing grade.
Enrolment restrictions	Students must be enrolled at The College.
Learning outcomes	<p>On successful completion of this unit, students should be able to:</p> <ol style="list-style-type: none"> 1. use graphical and computer methods to analyse data 2. identify the characteristics of uniform motion and calculate variables of motion in one dimension 3. identify the characteristics of uniformly accelerated motion and predict variables of motion based on past or current conditions in one dimension 4. use Newtonian dynamics to quantitatively analyse objects in equilibrium and acceleration 5. use the concepts of work and conservation of energy to explain the behaviour of different systems 6. demonstrate an ability to describe and apply quantitative relationship between charge, current, resistance and electrical power in the combined circuits 7. quantitatively analyse reflection and refraction of waves, and 8. perform experiments to demonstrate and measure physics principles and concepts.

Unit content	<p>In this unit students will learn about:</p> <ul style="list-style-type: none"> • Mechanics — Dynamics and Statics — SI units and their relationship, addition and subtraction of force vectors, motion in a straight line, graphing motion, Newton's Law of Motion, momentum and impulse, conservation of momentum • Mechanics — Energy and Power — Work and energy, conservation of energy, power and efficiency • Electricity — Ohm's law, electric current and circuits, electrical power, using electricity safety • Waves — Description of wave motion, mechanical waves, sound waves
Laboratory induction requirements	<p>This unit will require you to complete practical activities and/or workshop activities in the laboratory throughout the term.</p> <p>Before you can participate in the practical activities and/or workshop activities you must complete an online laboratory induction which can be accessed through the vUWS website.</p> <p><u>It is the responsibility of the individual student to complete a laboratory induction before their first practical/workshop activity.</u></p> <p>Only students who complete their laboratory inductions may attend the practical and workshop activities. Any student who misses a practical or workshop activity will receive a mark of zero for the associated assessment task missed.</p> <p>All laboratory inductions are completed through the vUWS online learning system. Students must login and complete the online induction before the first practical class.</p> <p>Students are required to complete a laboratory induction at the beginning of each term. Lab inductions will only be available to students to complete in the first few weeks of term.</p>
Mode of delivery	<p>This unit consists of four hours of tutorials each week and nine two-hour practicals in total per term, alternating with three two-hour tutorial sessions per term. There may be additional activities on the unit's vUWS site.</p>
Online learning requirements	
Essential requirements	<p>Essential texts</p> <ul style="list-style-type: none"> • The College, <i>Foundation Physics 1 practical workbook</i>, Western Sydney University The College, Sydney. <p>Further resources</p> <ul style="list-style-type: none"> • Andriessen, M 2009, <i>Physics 1 preliminary course</i>, 3rd edn, Jacaranda Plus, Milton. • Butler, M 2003, <i>HSC physics</i>, Macquarie Revision Guides, Macmillan Education, South Yarra. • Butler, M 2003, <i>Preliminary physics</i>, Macquarie Revision Guides, Macmillan Education, South Yarra. • Eric Mazur 2015, <i>Principles and practice of physics</i>, Pearson, Boston. <p>Essential equipment</p> <ul style="list-style-type: none"> • Non-programmable scientific calculator • Laboratory notebook • Protractor and ruler • Pens and pencils

ASSESSMENT ITEMS AND WEIGHTING

Assessment for this unit will be based on the following components:

Task	Weighting	Learning outcomes assessed	Mandatory task
1. Intra-session exam (1 hour)	20%	1–4	Yes
2. Practicals ×5	10%	1–8	Yes
a. Practical preparatory work (2 hours before class)	25%		
b. 5 reflective tasks submitted following the practicals (1000 words)	5%		
c. Practical skills demonstration (2 hours during practical class)			
3. End of Session exam (2 hours)	40%	1–7	Yes
TOTAL	100%		

For details of assessment due dates, please refer to the learning guide for this unit.

All marks will be determined in accordance with The College [Assessment Policy](#).

All assessment tasks are mandatory unless otherwise specified. Should a student fail to attempt/submit the first formal assessment task in a unit, they will be deemed to be at risk and will need to follow an intervention plan in order not to receive a Fail Non-Submission (FNS) grade. However, failure to attempt/submit all other mandatory assessment tasks will result in an immediate FNS grade for the unit.

In order to pass this unit, students must:

- attempt/submit all mandatory assessment tasks, and
- achieve an overall mark of at least 50%.

Note: Due to the evolving COVID-19 pandemic, there may be changes to the delivery details. Students are advised to check the announcements on the unit vUWS site and communication from their teachers throughout the teaching session to ensure that they keep up to date with changing information.