PHYS1510
Engineering Physics
Session 1, Weekday attendance, North Ryde 2020

Department of Physics and Astronomy

Contents

General Information ................................................. 2
Learning Outcomes .................................................. 4
General Assessment Information ................................. 0
Assessment Tasks ...................................................... 5
Delivery and Resources ............................................. 5
Unit Schedule .......................................................... 7
Policies and Procedures ............................................. 7
Changes from Previous Offering ................................. 9
Changes since First Published ...................................... 9

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Important Academic Dates
Information about important academic dates including deadlines for withdrawing from units are available at https://students.mq.edu.au/important-dates

Learning Outcomes
On successful completion of this unit, you will be able to:

**ULO1**: explain foundational physics concepts in terms of their underlying physical principles and describe them in terms of concise mathematical models.

**ULO2**: analyse a real-world problem, break the problem into component parts relating to different areas of physics, identify known quantities and apply mathematical models to arrive at a numerical value for an unknown quantity, and interpret how the numerical results relate to the physical world.

**ULO3**: perform physical measurements, record experimental data, display data graphically, analyse data, and draw written conclusions in a clear, concise, and systematic manner.

**ULO4**: identify, record and explain sources of uncertainty in physical measurements; and
undertake appropriate uncertainty analysis of results, including statistical analysis.

**ULO5:** demonstrate foundational learning skills including active engagement in your learning process.

**ULO6:** work collaboratively with peers.

### Assessment Tasks

**Coronavirus (COVID-19) Update**

Assessment details are no longer provided here as a result of changes due to the Coronavirus (COVID-19) pandemic.

Students should consult [iLearn](https://ilearn.mq.edu.au) for revised unit information.

Find out more about the Coronavirus (COVID-19) and potential impacts staff and students

### Delivery and Resources

**Coronavirus (COVID-19) Update**

Any references to on-campus delivery below may no longer be relevant due to COVID-19.

Please check here for updated delivery information: [https://ask.mq.edu.au/account/pub/display/unit_status](https://ask.mq.edu.au/account/pub/display/unit_status)

**General Information** Study material is hosted on the iLearn webpage for the unit as are all announcements [http://ilearn.mq.edu.au](http://ilearn.mq.edu.au)

**Asking for help** A number of people can assist students while they undertake PHYS1510. For any inquiry please use this e-mail address: phys1510@mq.edu.au instead of using people's personal e-mails. This will ensure that the best answer to your question is obtained.

**Unit textbook and textbook resources** The textbook for this unit is "Fundamentals of Physics" by Halliday, Resnick, & Walker, 11th edition. It is essential that you obtain a copy (digital or physical) of this textbook (10th edition is sufficient) as we will be following it closely and you will find it an invaluable resource while working on 'assigned problems' in PHYS1510. Print versions or digital options are available through [https://www.wileydirect.com.au/buy/fundamentals-of-physics-11th-australia-new-zealand-edition/](https://www.wileydirect.com.au/buy/fundamentals-of-physics-11th-australia-new-zealand-edition/). Students are also encouraged to sign up to the Wiley Plus website to make use of the extended learning resources available there - including interactive problem-solving resources. Instructions will be provided in lectures.

**Technology** Audio recordings and copies of slides from lectures will be available in iLearn through the Echo360 system. By virtue of the activities that occur in a physics lecture (demonstrations, problem-solving) making use of these resources is not equivalent to attending. These resources are good for review and revision. The use of calculators in the laboratory classes, when completing quizzes, in the in-session exam and in the final examination for this unit is usually necessary. In accordance with the Science & Engineering Faculty's policy, calculators with a full alphabet on the keyboard are not allowed in the quizzes, in-session exam
or the final examination. Personal electronic devices such as smartphones, tablets, or laptops will be used for self-assessment quizzes and other learning enhancement classroom activities.

**Lectures, tutorials and laboratory sessions** This unit consists of three different formal types of activity:

1. **Lectures**, in which new material is presented, discussed and illustrated by examples and demonstrations. Attending lectures is an important part of studying physics since it allows you to gain an insight into the subject matter that reading the textbook alone cannot provide, and lecture attendance is compulsory. The lecturers can explain the concepts from several points of view, can point out and explain the most important aspects of the material and, very importantly, can illustrate the relationships and connections between the different concepts that are studied in PHYS1510 – no subject in physics stands on its own.

2. **Weekly problem-solving classes** In problem-solving classes, examples illustrating the material are presented for discussion (with fellow classmates and teachers) and problem-solving methods are practised. Classes in weeks 1-5 and 7-13 will include a 15 minute quiz, based on the earlier questions in that class and the lecture material from that week. Problem-solving classes form an important learning component of PHYS1510 and are therefore compulsory. We require effective participation in problem-solving classes entailing a focused work effort and attendance for the full session. If you do not participate effectively in a given week, for example arriving late or leaving the class early without extenuating circumstances, it will be grounds for receiving a score of zero for that week’s quiz.

3. **Laboratory sessions**

You will complete 10 lab sessions. The laboratory component is an essential component of your studies and so counts for an appreciable fraction of your final assessment. You will be introduced to some of the basic skills and techniques required of practicing physicists, scientists and engineers. You will be issued with a **Laboratory Notebook**, provided with instructional material in the form of **Laboratory Notes** which can be found in the Laboratory Resources section of iLearn, and assisted in the laboratory by a team of demonstrators. For each laboratory session, except in week 1, you are required to complete some preparatory work (**Pre-Lab**) before attending your nominated Lab session. To figure out which Prelab to do, please consult the **Laboratory Schedule** on iLearn.

**Location:** There are two laboratories used for 1st year physics they are both in 14 SCO (formerly E7B):

- **Room 114** (Ground floor at the North-East corner of building)
- **Room 254** (First floor, north-facing side of the atrium)

Please check iLearn to see where your lab class will take place.

**Laboratory Safety:** You are required to follow all safety guidelines given in the first Lab session, your lab notes, and the lab staff. Food and drink cannot be consumed in the lab, and students without suitable covered footwear will be refused admission.

Lecture, laboratory and class times - See more detailed information in your timetable.
Unit Schedule

Coronavirus (COVID-19) Update
The unit schedule/topics and any references to on-campus delivery below may no longer be relevant due to COVID-19. Please consult iLearn for latest details, and check here for updated delivery information: https://ask.mq.edu.au/account/pub/display/unit_status

Lectures: A more detailed week-by-week schedule is listed on iLearn.

The unit is taught in two halves: • Mechanics, A/Prof Alex Fuerbach, Weeks 1-7: Chapters 1-12, 15 (Australia & New Zealand 11th edition)

• Thermal Physics and Electromagnetism, Prof Judith Dawes, Weeks 8-13: Chapters 18-20, 21, 22, 24 and 28 (11th edition)

Lecture times are on Tuesday at 1-2 pm and Wednesday at 1-2 pm in 23 Wallys Walk, Theatre 2,

Laboratory sessions: Each student will attend 10, 3-hour long laboratory sessions, starting in week 1.

Problem-solving classes: Each student will attend 13, 2-hour long classes, starting in week 1. Note that there is a mid-semester exam held during the classes in week 7.

Policies and Procedures
Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

• Academic Appeals Policy
• Academic Integrity Policy
• Academic Progression Policy
• Assessment Policy
• Fitness to Practice Procedure
• Grade Appeal Policy
• Complaint Management Procedure for Students and Members of the Public
• Special Consideration Policy (Note: The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)

Students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.
If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

**Student Code of Conduct**

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/study/getting-started/student-conduct

**Results**

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

**Student Support**

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

**Learning Skills**

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

**Student Enquiry Service**

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

**Equity Support**

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

**IT Help**

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.
Changes from Previous Offering
The subject content was substantially changed in semester 2 2019, and for this offering, we made small adjustments to the weekly quizzes and tutorial questions.

Changes since First Published

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<thead>
<tr>
<th>Date</th>
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<tbody>
<tr>
<td>19/02/2020</td>
<td>change to the unit learning outcomes mapping</td>
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