

PHYS 1002 PHYSICS 1

Credit Points 10

Legacy Code 300828

Coordinator Nicholas Tothill ([https://directory.westernsydney.edu.au/search/name/Nicholas Tothill/](https://directory.westernsydney.edu.au/search/name/Nicholas%20Tothill/))

Description Physics is the study of the fundamental nature of matter, energy, space-time, and motion. It uses conceptual, mathematical and experimental tools to achieve this understanding. In this subject, we survey mechanics, electromagnetism, optics and thermal physics, and briefly consider relativity, quantum physics and nuclear physics. Conceptual, mathematical and experimental understanding of physics will be developed, and the use of the tools of physics (e.g. estimation, uncertainty, dimensional analysis) will be introduced. This subject provides non-specialists (e.g. students in other majors and aspiring secondary teachers) with a good basic overview of the subject, and prepares specialist students for further study.

School Science

Discipline Physics

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 1 subject

Equivalent Subjects PHYS 1003 - Physics 1 PHYS 1004 Physics 1 (WSTC)

Assumed Knowledge

HSC 2 Unit Mathematics Band 4 (Not General Mathematics) or equivalent.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Describe a physical problem in terms of an appropriate conceptual and mathematical framework.
2. Explain the principles involved and the equations or other mathematical models that govern a given physical problem..
3. Carry out calculations based on physical models and interpret the results.
4. Record, present and interpret experimental data.
5. Estimate the errors in a measurement and propagate the effects of these errors through simple calculations.

Subject Content

1. Mechanics: Newton's laws; force and energy; conservation laws; stress and strain
2. Electromagnetism: Electrostatics; magnetic fields; DC circuits
3. Optics: Geometric optics; imaging; spectroscopy
4. Thermal Physics: Temperature; thermodynamics; kinetic theory
5. Basic relativity
6. Basic quantum theory
7. Basic nuclear and particle physics

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are

regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Quiz	4 x 30 minute quizzes	30	N	Individual
End-of-session Exam	2 hours	30	N	Individual
Log/ Workbook	3hr lab classes in alternate weeks during semester	20	N	Individual
Practical Exam	80 minutes	20	N	Individual

Prescribed Texts

- Physics 1 Laboratory Manual. Available from the bookshop or via this subjects vUWS web site
- Physics 1 Learning Guide. Available via this subjects vUWS web site
- Giancoli, D. C., Physics, Principles with Applications, 6th Edition, Prentice Hall (2005)

Teaching Periods

Autumn (2024)

Parramatta - Victoria Rd

On-site

Subject Contact Nicholas Tothill ([https://directory.westernsydney.edu.au/search/name/Nicholas Tothill/](https://directory.westernsydney.edu.au/search/name/Nicholas%20Tothill/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=PHYS1002_24-AUT_PS_1#subjects)