PHYS 1004 PHYSICS 1 (WSTC)

Credit Points 10

Legacy Code 700035

Coordinator Phillip Newman (https://directory.westernsydney.edu.au/search/name/Phillip Newman/)

Description This subject provides an introduction to physics for science and medical science students as well as providing a basis for further study of more advanced physics for students pursuing courses in nanotechnology, chemical, physical and mathematical sciences. It provides a foundation to understand the physical principles which underlay scientific instrumentation and analysis. Topics covered include systems of units; Introductory mechanics, Newton's laws, work, conservation of energy and momentum; Electricity, electrostatics, DC and AC circuits and components, introductory electromagnetism; Waves and optics, electromagnetic radiation, reflection, refraction, image formation, polarisation, interference and diffraction.

School Science

Discipline Physics

Student Contribution Band HECS Band 2 10cp

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

Level Undergraduate Level 1 subject

Equivalent Subjects LGYA 3630 - Engineering Physics PHYS 1001 - Physics 1 LGYA 5727 - Physics 1D PHYS 1003 - Physics 1 PHYS 1002 - Physics 1

Restrictions Students must be enrolled at Western Sydney University, The College. Students enrolled in the Extended Diploma programs (7086 - Diploma in Science Extended, 7087 - Bachelor of Science Extended (WSTC First Year Program) must have passed 40 credit points in order to enrol in this subject. Students enrolled in the combined Diploma/Bachelor programs listed below must pass all College Preparatory subjects listed in the program structure before progressing to the Year Two subjects.

Assumed Knowledge

HSC Mathematics or equivalent.

Learning Outcomes

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

1. Analyse the description of a physical problem, for the topics listed in the contents, and apply a frame of reference or other appropriate mathematical framework to the problem.
2. Explain the physical principles by writing down appropriate equations or other mathematical models such as a geometrical construct to produce a mathematical model of the physical problem.
3. Identify known and unknown variables in a mathematical model of a physical problem and manipulate the model to predict unknown.
4. Interpret results of calculations in terms of real physical world events.
5. Record, present and analyse experimental data.
6. Estimate the errors in a measurement and propagate the effects of these errors through simple calculations.

Subject Content

1. Introduction to Physics: units and measurement.
2. Mechanics: Kinematics in one and two dimensions, velocity, acceleration, vectors; Dynamics, force, mass and Newton?fs laws; Work, energy, power and the conservation of energy; Linear momentum and the conservation of momentum.
3. Elec

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
Log/ Workbook	400 words each	20	N	Individual
Quizzes x 4	30 minutes each	40	N	Individual
Intra-session Exam (Data Analysis Lab Test)	80 minutes	10	N	Individual
Final Examination	2 hours	30	N	Individual

Teaching Periods