

# ENGR 1013 ENGINEERING PHYSICS (WSTC)

**Credit Points** 10

**Legacy Code** 700151

**Coordinator** Abbas Ranjbar ([https://directory.westernsydney.edu.au/search/name/Abbas Ranjbar/](https://directory.westernsydney.edu.au/search/name/Abbas%20Ranjbar/))

**Description** This subject serves as an introduction to the fundamentals of engineering physics with appropriate applications in a wide range of engineering and industrial design systems.

**School** Eng, Design & Built Env

**Discipline** Other Engineering And Related Technologies

**Student Contribution Band** HECS Band 2 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 1 subject

**Co-requisite(s)** MATH 0008 - Mathematics 2 (WSTC Prep)

**Restrictions** Students must be enrolled at Western Sydney University, The College. Students enrolled in Extended Diplomas must pass 40 credit points from the preparatory subjects listed in the program structure prior to enrolling in this University level 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 2 subjects.

## Assumed Knowledge

HSC physics and HSC mathematics (not General Mathematics).

## Learning Outcomes

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

1. Identify and apply System Internationale (SI) units in the areas covered in this unit.
2. Analyse and solve problems by applying the laws and principles of engineering physics in the following areas covered by the subject ? units and vectors, linear and circular motion, photons, electrons and atoms, force systems and equilibrium, work and energy applications, dynamics of rotational motion, fluid dynamics, heat and thermodynamics, periodic motion and wave phenomena, electricity and magnetism.
3. Plan, conduct and document experiments performed in the laboratory on ? measurements and uncertainties, acceleration due to gravity, coefficients of friction, standing waves, spectral line analysis.
4. Interpret the results of experiments against the theory including the estimation of experimental uncertainties.

## Subject Content

1. Units and Vectors
2. Linear and circular motion
3. Photons, electrons and atoms
4. Force systems and equilibrium
5. Work and energy applications
6. Dynamics of rotational motion
7. Fluid dynamics
8. Heat and thermodynamics

9. Periodic motion and wave phenomena
10. Electricity and magnetism
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## 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	Mandatory
Intra-session Exam	45 minutes	25	N	Individual	N
Practical Exam	2 hours each	10	N	Group	N
Practical Exam	1 hour	15	N	Individual	N
Final Exam	2 hours	50	N	Individual	N

## Prescribed Texts

- Young, HD and Freedman, RA 2015. University Physics with Modern Physics Global Edition, Pearson Australia

## Teaching Periods

### Term 2 (2025)

### Penrith (Kingswood)

#### On-site

**Subject Contact** Abbas Ranjbar ([https://directory.westernsydney.edu.au/search/name/Abbas Ranjbar/](https://directory.westernsydney.edu.au/search/name/Abbas%20Ranjbar/))

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=ENGR1013\\_25-T2\\_KW\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ENGR1013_25-T2_KW_1#subjects))