

# ENGR 1013 ENGINEERING PHYSICS (WSTC)

**Credit Points** 10

**Legacy Code** 700151

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

**Description** This unit 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 HECS Band contribution amount 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

**Pre-requisite(s)** Students enrolled in 7034 Diploma in Engineering 7066 Diploma in Engineering Fast Track or 6033 Diploma in Engineering Bachelor of Engineering Studies must pass PHYS 0003 Foundation Physics 2 before enrolling in this unit

**Equivalent Subjects** ENGR 1028 - Physics and Materials ENGR 1011 - Engineering Physics ENGR 1035 - Physics and Materials (UWSC) LGYB 0486 - Physics and Materials (UWSC Assoc Deg) ENGR 1012 - Engineering Physics (WSTC Assoc Deg)

**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.

Item	Length	Percent	Threshold	Individual/ Group Task
Intra-session Exam	45 minutes	25	N	Individual
Practical	2 hours each	10	N	Group
Practical Exam	1 hour	15	N	Individual
Final Exam	2 hours	50	N	Individual

Prescribed Texts

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

Teaching Periods

## Term 1

**Parramatta City - George St**

**Day**

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

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=ENGR1013\\_22-T1\\_PG\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR1013_22-T1_PG_D#subjects))

## Term 2

### Penrith (Kingswood)

#### Day

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

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=ENGR1013\\_22-T2\\_KW\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR1013_22-T2_KW_D#subjects))

### Parramatta City - George St

#### Day

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

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## Term 3

### Penrith (Kingswood)

#### Day

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

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=ENGR1013\\_22-T3\\_KW\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR1013_22-T3_KW_D#subjects))

### Parramatta City - George St

#### Day

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

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