

# ENGR 1012 ENGINEERING PHYSICS (WSTC ASSOCD)

**Credit Points** 10

**Legacy Code** 700153

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

**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. Students will be expected to solve problems by applying the laws and principles of engineering physics in the following areas covered by the unit - 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.

**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

**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 1013 - Engineering Physics (UWSC)

**Restrictions** Students must be enrolled at Western Sydney University, The College in 7022 Associate Degree in Engineering

**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

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

## 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
Practical	6 hours	15	N	Both (Individual & Group)
Intra-session Exam	1 hour	15	N	Individual
Quiz	~0.5 hour each	30	N	Individual
Final Exam	2 hours	40	N	Individual

Prescribed Texts

- Young, HD, Freedman, RA and Bhathal, R 2010. Value Pack University Physics plus Mastering Physics with eBook, Pearson Australia

Teaching Periods

## Quarter 2

### Nirimba Education Precinct

**Composite**

**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/even/timetable/?subject\\_code=ENGR1012\\_22-Q2\\_BL\\_C#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR1012_22-Q2_BL_C#subjects))