

# ENGR 1053 APPLIED PHYSICS FOR ENGINEERS (WSTC)

**Credit Points** 10

**Coordinator** Abbas Ranjbar (<https://directory.westernsydney.edu.au/search/name/Abbas.Ranjbar/>)

**Description** This subject provides you with an introduction to the fundamentals of engineering physics, tailored for relevance in various engineering contexts. You will master the use of System Internationale (SI) units and engage deeply with core principles spanning from mechanics and thermodynamics to electricity and magnetism. This subject not only equips you with an understanding of the theoretical knowledge of engineering physics, but also places a strong emphasis on the practical application through a series of experiments. You will hone your skills in planning, conducting, and documenting experiments, allowing you to draw meaningful connections between theoretical principles and experimental results.

**School** Eng, Design & Built Env

**Discipline** Engineering and Related Technologies, Not Elsewhere Classified.

**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

## Restrictions

Students must be enrolled in an existing Destination College Diploma program listed below:

- 7188 Diploma in Culture, Society and Justice
- 7189 Diploma in Health Science
- 7190 Diploma in Business
- 7191 Diploma in Information and Communication Technologies
- 7192 Diploma in Building Design and Construction
- 7193 Diploma in Engineering Studies
- 7194 Diploma in Creative Industries and Communications
- 7195 Diploma in Arts
- 7196 Diploma in Science
- 7197 Diploma in Education Studies

## Learning Outcomes

After successful completion of this subject, students will be able to:

1. Identify and apply System Internationale (SI) units relevant to this subject.
2. Apply engineering physics principles to solve problems in areas including units and vectors, motion, waves, forces, energy, fluid mechanics, electricity, magnetism, and heat.
3. Plan and conduct experiments on measurements and uncertainties, gravity, friction, standing waves, and spectral line analysis, and document the results.
4. Compare experimental results to theory considering experimental uncertainties.

5. Communicate clearly and professionally through written reports, and visual and verbal presentations.

## 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 mechanics
- 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.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Quiz	2x Quiz, 1 hr each	30	N	Individual	N
Practical	2 hours	40	N	Individual	N
Applied Project	1000 words or equivalent	20	N	Individual	N
Presentation	20 minutes per group	10	N	Group	N

## Teaching Periods

### Autumn Block 4 (2025)

#### Penrith (Kingswood)

##### On-site

**Subject Contact** Abbas Ranjbar (<https://directory.westernsydney.edu.au/search/name/Abbas.Ranjbar/>)

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=ENGR1053\\_25-AB4\\_KW\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ENGR1053_25-AB4_KW_1#subjects))

### Spring Block 4 (2025)

#### Penrith (Kingswood)

##### On-site

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