

# ENGR 1047 ADVANCED ENGINEERING PHYSICS 1

**Credit Points** 10

**Legacy Code** 301334

**Coordinator** Md Abdul Alim ([https://directory.westernsydney.edu.au/search/name/Md Abdul Alim/](https://directory.westernsydney.edu.au/search/name/Md%20Abdul%20Alim/))

**Description** This subject will be offered at Engineering Innovation Hub - Hassall St, Parramatta campus. The aim of this subject is to introduce students to the conceptual, mathematical and practical aspects of the following topics in advanced engineering physics, viz: vectors, linear and circular motion, photons, electrons and atoms, Newtons laws of motion, work and kinetic energy, dynamics of rotational motion, fluid dynamics, thermodynamics, periodic motion and waves/acoustics. The content will be delivered via a combination of lectures, tutorials and hands-on practicals in order to develop the growth of theoretical and applied engineering physics knowledge. This will provide students with a solid foundation for their engineering studies.

**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

**Equivalent Subjects** ENGR 1011 - Engineering Physics  
ENGR 1013 - Engineering Physics

## Assumed Knowledge

HSC Physics and HSC Mathematics Extension 1 (not General Mathematics).

## Learning Outcomes

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

1. Identify and apply System Internationale (SI) units.
2. Identify and solve problems by applying the laws and principles of engineering physics.
3. Plan, conduct and document experiments performed in the laboratory.
4. Interpret the results of experiments against the theory including the estimation of experimental uncertainties.

## Subject Content

1. Units, Physical Quantities and Vectors
2. Motion along a straight path
3. Motion in two and three dimensions
4. Newton's Laws of motion
5. Work and energy applications
6. Momentum, impulse and collisions
7. Rotation and dynamics of rigid bodies
8. Temperature and heat
9. Periodic motion and mechanical waves

## 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
Report	2 hours per practical	15	N	Individual	N
Quiz	40 minutes	20	N	Individual	N
Practical Exam	2 hours	5	N	Individual	N
Numerical Problem Solving	5-10 problems	10	N	Individual	Y
Final Exam	2 hours	50	N	Individual	Y

### Prescribed Texts

- Young, HD & Freedman, RA 2020, Sears and Zemansky's University Physics with Modern Physics, 15th Global edn, Pearson Higher Ed, Boston.