

# ENGR 1051 ENGINEERING PHYSICS (BLOCK)

**Credit Points** 10

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

**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. Students will be expected to 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.

**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 (300963) Engineering Physics  
ENGR 1013 (700151) Engineering Physics (WSTC)  
ENGR 1028 (300464) Physics and Materials  
ENGR 1035 (700020) Physics and Materials (WSTC)  
700117 Physics and Materials (WSTC Assoc Deg)  
ENGR 1012 (700153) Engineering Physics (WSTC AssocD)

## Restrictions

Students must be enrolled in program :-

7178 Diploma of Aerotropolis Industry 4.0 (Mechatronic Skills)

or

7182 Undergraduate Certificate in Engineering

## Learning Outcomes

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 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.
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

## Special Requirements

Essential equipment

College approved Calculator.

## 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
Practical		45	N		N
Numerical Problem Solving		40	N		N
Case Study		15	N		N