ENGR 1011 ENGINEERING PHYSICS

Credit Points 10

Legacy Code 300963

Coordinator Zhong Tao (https://directory.westernsydney.edu.au/search/name/Zhong Tao/)

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.

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/) page.

Level Undergraduate Level 1 subject

Equivalent Subjects ENGR 1028 - Physics and Materials ENGR 1035 - Physics and Materials (UWSC) LGYB 0486 - Physics and Materials (UWSC Assoc Deg) ENGR 1013 - Engineering Physics (WSTC) ENGR 1012 - Engineering Physics (WSTC AssocD)

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 & 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.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Practical	Complete during 2 hour practical session	10	N	Individual	Y
Practical Exam	2 hours	13	N	Individual	Y
Numerical Problem Solving	40 minutes	30	N	Individual	N
Final Exam	1 hour	40	N	Individual	N
Self-Assessment	Complete Modules 2 through to 8.	7	N	Individual	N

Prescribed Texts

- Young, HD, Freedman, RA, Ford, AL & Estrugo, KZ 2020, Sears and Zemansky's university physics : with modern physics, 15th SI edn, Pearson Education, Harlow.

Teaching Periods

Autumn (2025)

Penrith (Kingswood)

On-site

Subject Contact Zhong Tao (https://directory.westernsydney.edu.au/search/name/Zhong Tao/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ENGR1011_25-AUT_KW_1#subjects)

Parramatta City - Macquarie St

On-site

Subject Contact Zhong Tao (https://directory.westernsydney.edu.au/search/name/Zhong Tao/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ENGR1011_25-AUT_PC_1#subjects)

Sydney City Campus - Term 1 (2025)

Sydney City

On-site

Subject Contact Peter Lendrum (https://directory.westernsydney.edu.au/search/name/Peter Lendrum/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ENGR1011_25-SC1_SC_1#subjects)

Sydney City Campus - Term 3 (2025)

Sydney City

On-site

Subject Contact Peter Lendrum (https://directory.westernsydney.edu.au/search/name/Peter Lendrum/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ENGR1011_25-SC3_SC_1#subjects)