ENGR 1018 FUNDAMENTALS OF MECHANICS

Credit Points 10

Legacy Code 300463

Coordinator Md Abdul Alim (https://directory.westernsydney.edu.au/search/name/Md Abdul Alim/)

Description In this unit students acquire knowledge about the action and interaction of forces, moments and couples in two and three dimensions. Students then apply this to the analysis of the equilibrium of single bodies, and of trusses, mechanisms, and transversely loaded beams. In addition, students study the dynamics of a non-rotating body, and a body rotating about a fixed axis. Further, they study the friction between bodies. Students conduct experiments to see how the lecture content applies to the real world, and make extensive use of vector algebra.

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/) page.

Level Undergraduate Level 1 subject

Equivalent Subjects ENGR 1020 Fundamentals of Mechanics (WSTC) ENGR 1019 Fundamentals of Mechanics (WSTC Assoc Deg)

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Use equilibrium to evaluate unknown reactions, internal loads and represent distributed forces.
2. Evaluate the internal forces in planar trusses, and mechanisms.
3. Calculate the acceleration of a body under the action of an unbalanced force or couple.
4. Analyse static and kinetic friction.
5. Construct bending moment and shear force diagrams.
6. Take measurements in the real world, and use them to verify the theory presented in the lectures.

Subject Content

Statics in two dimensions
Statics in three dimensions
Translational Dynamics
Rotational Dynamics
Beam Diagrams

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
Numerical Problem Solving	Two 3-hour practical labs for 5 different experiments	20	Y	Individual
Numerical Problem Solving	12 tutorial sets with 5 -10 questions (each)	12	Y	Individual
Numerical Problem Solving	20 minutes (per Quiz)	20	N	Individual
Final Exam	2 hours	48	N	Individual

Prescribed Texts

- Meriam, JL & Kraige, LG 2013, Engineering mechanics : statics, 7th, SI edn, Wiley, Singapore.
- Hibbler, RC, 2017, Engineering Mechanics Statics, 14th Edition, Pearson, Hoboken

Teaching Periods

Summer B

Parramatta City - Macquarie St

Day

Subject Contact Md Abdul Alim (https://directory.westernsydney.edu.au/search/name/Md Abdul Alim/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR1018_22-SUB_PC_D#subjects)

Sydney City Campus - Term 1

Sydney City

Day

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

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR1018_22-SC1_SC_D#subjects)

Spring

Penrith (Kingswood)

Day

Subject Contact Leigh Sheppard (https://directory.westernsydney.edu.au/search/name/Leigh Sheppard/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR1018_22-SPR_KW_D#subjects)

Parramatta - Victoria Rd

Day

Subject Contact Md Abdul Alim (https://directory.westernsydney.edu.au/search/name/Md Abdul Alim/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR1018_22-SPR_PS_D#subjects)

Sydney City Campus - Term 3

Sydney City

Day

Subject Contact Eileen An (https://directory.westernsydney.edu.au/search/name/Eileen An/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR1018_22-SC3_SC_D#subjects)