

MECH 3005 MECHANICAL DESIGN

Credit Points 10

Legacy Code 300764

Coordinator Leo Zhang ([https://directory.westernsydney.edu.au/search/name/Leo Zhang/](https://directory.westernsydney.edu.au/search/name/Leo%20Zhang/))

Description This unit introduces students to the design of machine components. The unit covers the design of components to ensure their functionality, strength and durability. Components designed include drive components, gears, shafts, belt drives, and bearings and structural components, welds and treaded fasteners.

School Eng, Design & Built Env

Discipline Mechanical Engineering

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 3 subject

Pre-requisite(s) MECH 2003 AND MECH 2001

Equivalent Subjects MECH 3003 - Design of Servo-Systems

Assumed Knowledge

This subject assumes that the student has undertaken first and second year studies in Western Sydney University engineering programs or equivalent.

Learning Outcomes

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

1. Design mechanical components using belt drives and chain drives
2. Design typical gears
3. Conduct a typical shaft design
4. Design mechanical components using bearings
5. Design mechanical components using threaded fasteners
6. Design mechanical components using welded joints
7. Design a mechanical assembly in a team working environment.

Subject Content

Design of Belt drives and chain drives
 Design of gears
 Design of shafts
 Design of bearings
 Design of threaded fasteners
 Design of welded joints
 Nature of mechanical design
 Engineering drawing and design standards
 Engineering Materials in design
 Design under different loading conditions

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	6 pages each	15	N	Individual
Practical Report	5 pages each 10000 word report & 15 min oral presentation	20 25	N Y	Individual Group
Final Exam	2 hours	40	Y	Individual

Prescribed Texts

- Mott, RL 2018 Machine elements in mechanical design, 6th Ed., NY: Pearson.
- Mott, RL 2013 Machine elements in mechanical design, 5th Ed., Pearson/Prentice Hall, Upper Saddle River, N.J.

Teaching Periods

Autumn Penrith (Kingswood)

Day

Subject Contact Leo Zhang ([https://directory.westernsydney.edu.au/search/name/Leo Zhang/](https://directory.westernsydney.edu.au/search/name/Leo%20Zhang/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MECH3005_22-AUT_KW_D#subjects)

Parramatta - Victoria Rd

Day

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Sydney City Campus - Term 2 Sydney City

Day

Subject Contact Peter Lendrum ([https://directory.westernsydney.edu.au/search/name/Peter Lendrum/](https://directory.westernsydney.edu.au/search/name/Peter%20Lendrum/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MECH3005_22-SC2_SC_D#subjects)