MECH 7008 MECHATRONIC SYSTEM DESIGN

Credit Points 10

Legacy Code 300600

Coordinator Payam Zarafshan (https://directory.westernsydney.edu.au/search/name/Payam Zarafshan/)

Description This subject will advance the skills of mechanics, mechanical systems and automation in the practice of engineering design as applied to mechatronic devices and systems. The ability to perform detailed design analysis of machine elements as well as control systems as applicable to manufacturing and process machinery is the intended outcome of undertaking this subject and project-based tasks will form part of the learning process and team work experience.

School Eng, Design & Built Env

Discipline Mechanical and Industrial Engineering and Technology, Not Elsewhere Classified.

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Postgraduate Coursework Level 7 subject

Incompatible Subjects LGYA 6106 - Servo Systems Design (PG) LGYA 5832 - Mechatronic System Design

Restrictions

Students must be enrolled in a postgraduate program

Assumed Knowledge

Equivalent Bachelor of Engineering degree.

Learning Outcomes

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

1. Design machine elements, such as shafts, bearings, brake, gears & clutches.
2. Design of a mechatronic system.
3. Design and analyse fluid power servo systems
4. Compare available equipment and select suitable components for the designed system.
5. Design an integrated mechatronic system in a team project-based environment

Subject Content

Shaft, bearing and gear analysis and design.
Belt drives, shaft, clutches, brakes, coupling and motor systems.
Pneumatic and hydraulic equipment and circuits.
Feedback loops and equipment selection.
Project based design of an integrated mechanical system including selection of suitable components.

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
Numerical Problem Solving	4 X Tutorial Assignments (7.5% each)	30	N	Individual	Y
Practical	4 X Lab Workbooks (5% each) Finish lab workbooks within 2 hour practical sessions	20	N	Individual	Y
Report	3,000 words (Report 25%) and 15 minutes (Presentation 5%)	30	Y	Group	Y
Quiz	2 X Quizzes (10% each) 1 hour each	20	N	Individual	Y

Prescribed Texts

- Boundy, AW 2012, Engineering drawing, 8th edn, McGraw-Hill, Sydney, N.S.W.
- Mott, RL, Vavrek, EM & Wang, J 2018, Machine elements in mechanical design, 6th edn, Pearson/Prentice Hall, Upper Saddle River, N.J

Teaching Periods

Spring (2025)

Parramatta City - Macquarie St

Hybrid

Subject Contact Payam Zarafshan (https://directory.westernsydney.edu.au/search/name/Payam Zarafshan/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MECH7008_25-SPR_PC_3#subjects)