

# ENGR 2027 ENGINEERING DESIGN

**Credit Points** 10

**Legacy Code** 301341

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

**Description** This subject will be offered at Engineering Innovation Hub - Hassall St, Parramatta campus. Design thinking is a fundamental skill that every engineer must have for the 21st Century. It is one of the skills that profoundly distinguish human intelligence from artificial intelligence, which greatly impacts an engineer's long-term career success in the workplace. This subject aims to equip students with the domain-independent and solution-neutral design thinking, which can be applied to whatever technical stream students choose to pursue in the future.

**School** Eng, Design & Built Env

**Discipline** Engineering and Related Technologies, Not Elsewhere Classified.

**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/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 2 subject

## Restrictions

Must be enrolled in 3771 Bachelor of Engineering Advanced (Honours)

## Learning Outcomes

After successful completion of this subject, students will be able to:

1. Conduct collaborative product planning to formulate a unique design problem by translating customer needs to functional requirements
2. Perform collaborative conceptual design to generate, evaluate, and select the functionally simple and physically certain concepts
3. Document the design process and present the design outcome through presentation, report, logbook, and CAD drawing.
4. Design mechanical components to satisfy the target functional requirements against design constraints

## Subject Content

- Design, innovation, and design thinking concepts
- Team building and logbook writing
- Formulate a unique design problem as functional requirements
- Generate design concepts by systemic design methods
- Organize design concepts based on the independence axiom
- Evaluate design concepts based on the information axiom
- Improve design concepts by resolving contradictions
- TRIZ and CAD drawing
- Component introduction and shaft design
- Bearings, couplings and alignment
- Belt and chain drive

- Motor selection and fly wheels
- Assembly, access, maintenance

## 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
Log/Workbook	10 pages	30	N	Individual
Report	12 pages	60	N	Group
Presentation	5 minutes	10	N	Group

Teaching Periods