

# ENGR 4022 STUDIO: DESIGN SYNTHESIS CAPSTONE

**Credit Points** 10

**Legacy Code** 301402

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

**Description** This subject engages students in a significant project that synthesises creative thinking, design strategy and practical design skills in preparation to be 'work-ready' as a designer upon graduation. Students will apply the skills that they have acquired throughout their degree in core and specialised elective subjects toward their Design Capstone project. The amalgamation of multidisciplinary viewpoints with industry collaborators throughout the subject ensures a vibrant learning environment, culminating in well resolved design outcomes within a Work Integrated Learning (WIL) Framework with linkages to a real-world challenge.

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

**Level** Undergraduate Level 4 subject

## Learning Outcomes

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

1. Critique existing global design trends (within the overarching project theme) in relation to manufacturing, sustainability and entrepreneurial opportunities
2. Develop methods for responding to an advanced design project brief.
3. Apply a range of 2D and 3D design communication skills to propose a design solution to a complex problem or issue
4. Synthesise and apply design process, skills and knowledge to create innovative design solutions in multidisciplinary teams.
5. Present an evidence-based design solution that addresses local, national or global requirements

## Subject Content

1. Advanced Integrated Product Design Investigation
2. Applied local and international design standards
3. Advanced iterative design methods incorporating analogue and digital communication
4. Actionable Manufacturing Documentation
5. Sustainable Lifecycle Design
6. Industry and community-centred contextually responsive value proposition
7. Course-length Skills Synthesis
8. Managing creativity and innovation in teams

## 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/<br>Group Task | Mandatory |
|-----------------|--|---------|-----------|---------------------------|-----------|
| Applied Project | Report - 10 pages,<br>Process - 20 pages,<br>Model - 1:1                 | 30      | N         | Group/<br>Individual      | N         |
| Applied Project | Process - 20 pages,<br>Engineering Drawings - 10 pages,<br>Model - scale | 30      | N         | Individual                | N         |
| Applied Project | Model - 1:1,<br>Posters - 2 x A2   | 40      | N         | Individual                | N         |

### Prescribed Texts

- Ulrich, KT, Eppinger, SD & Yang, MC 2020, *Product design and development*, 7th edn, McGraw-Hill Education, New York, NY.

### Teaching Periods

## Spring (2025)

### Parramatta City - Macquarie St

#### On-site

**Subject Contact** James Berry ([https://directory.westernsydney.edu.au/search/name/James Berry/](https://directory.westernsydney.edu.au/search/name/James%20Berry/))

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=ENGR4022\\_25-SPR\\_PC\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ENGR4022_25-SPR_PC_1#subjects))