

# ENGR 2022 DESIGN PRACTICE: SUSTAINABLE MANUFACTURING

**Credit Points** 10

**Legacy Code** 301308

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

**Description** Reflecting upon the life cycle of products and their components is important in understanding how decisions at the design level impact on people, resources, sustainable goals and how these contribute towards sustainability-oriented local and global value chains. This subject focuses on sustainable decision-making at the design level. It challenges and motivates students towards using sustainability principles to promote good Design for Disassembly (DfD) practices with linkages to material durability, and material reuse. Through a project-based approach, students will appraise manufacturing considerations for product design applying in succession Design for Manufacturing, Assembly and Disassembly (DfM, DfA, DfD) principles to their products and reflect on product lifecycle management best practice.

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

**Level** Undergraduate Level 2 subject

**Assumed Knowledge**

The ability to communicate a design proposal using 2D or 3D computer software with annotations, and application of Australian Standards AS 1100 is desirable.

## Learning Outcomes

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

1. Conduct a product review and re-design based on principles on DfM, DfA and DfD focusing on durability in regard for fit-for-purpose, and circular economy principles
2. Improve sustainable outcomes by applying Design for Manufacturing, Assembly and Disassembly techniques and approaches
3. Employ design methods that enhance the ease of manufacturing component assemblies and ease of disassembly
4. Effect positive sustainable change in design, manufacture, and end-of-life-cycle use of components supporting a sustainable systems approach

## Subject Content

1. Emergent local and global perspectives in Sustainable Manufacturing
2. Design for Assembly (DfA), Manufacturing (DfM), and Disassembly (DfD)
3. Design parts with: self-fastening features, handling & insertion, component symmetry, component minimisation, standardisation, modularity, and waste and part minimisation

4. Product Lifecycle Management (PLM) with emphasis on disposal and reuse of manufactured products material resource legacies

## 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
Proposal	1,000 words	20	N	Group
Applied Project	500 words (10%) 6 X A2 size concept development (20%)	30	N	Individual
Applied Project	Engineering drawings (15 pages)	30	N	Individual
Poster	A1 research poster	20	N	Individual

Teaching Periods

## Autumn (2022)

**Parramatta - Victoria Rd**

**Day**

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

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=ENGR2022\\_22-AUT\\_PS\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR2022_22-AUT_PS_D#subjects))

## Autumn (2023)

**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=ENGR2022\\_23-AUT\\_PC\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ENGR2022_23-AUT_PC_1#subjects))