

ENGR 1039 DESIGNING FOR CIRCULAR ECONOMY

Credit Points 10

Legacy Code 301281

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

Description Traditional linear consumption patterns have placed considerable load on available natural resources. The lack of comprehensive mitigation strategies has motivated local and international efforts around the United Nations Sustainable Development Goals (UNSDGs 2030) to finding resolutions towards making the world more equitable, sustainable, liveable and with opportunities for new sustainable businesses. Students will choose an existing product and apply the principles of the UNSDGs and Circular Economy to create a proposal and prototype to improve upon its current design. Throughout this process the students will consider product usage, durability, bio-ingredients, the product lifecycle, community impact, and sustainability.

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/) page.

Level Undergraduate Level 1 subject

Equivalent Subjects ENGR 1004 Design Science (WSTC)

Learning Outcomes

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

1. Apply appropriate methods of approach in designing for circular economy.
2. Examine the inter-relationships between human actions and natural ecosystems with a particular focus on a restorative approach with emphasis on product or service design, material optimisation for remanufacturing, reuse, or recycling processes and effective product design methodology.
3. Identify UNSDGs challenges and provide suggestions on how individuals can make a constructive contribution through their own discipline fields through discourse and reflection.
4. Engage and facilitate discussions around the principles of Circular Economy and their inclusion in all future project briefs.
5. Present a conceptual proposal for a product or service improvement that contributes positively to a circular economy approach at a local community or city-wide level.

Subject Content

1. Introduction to the concept of Circular Economy and power of Circular Design in responding to environmental challenges and meaningful professional practice with impact.
2. Moving from linear to circular economy and understanding your professional role mindset change and related progressive community actions.
3. Introduction to a selection of materials and processes used in the manufacture of consumer products and their related environmental impacts on consumer health and wellbeing.

4. The significance of recycled material utilisation through remanufacture toward new economic and environmental gains.
5. Introduction to the United Nations Sustainable Development Goals (UNSDGs) and relationship to professional practice.
6. Introduction to understanding biodiversity and ecosystems and positive effects of circular thinking through case studies and observing UNSDG progress and ethical decision-making in new product development.
7. Applying Circular Economy principles in conceptually redesigning a product or service in cooperation with an extended product life or material lifecycle strategy.

Special Requirements

Legislative pre-requisites

The WHS module must be completed successfully by all students as a requirement for accessing workshops and undertaking practical exercises.

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
Case Study	Design Brief (1000 words)	20	N	Group
Report	Report (1000 words), Visualisation (2x graphics)	30	N	Individual
Portfolio	Report (800 words), 3-Dimensional Model, Reflection(500 words)	50	N	Individual

Teaching Periods

Autumn

Parramatta - Victoria Rd

Day

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

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR1039_22-AUT_PS_D#subjects)