

Summary Information

Module Code	4562NCCG
Formal Module Title	Sustainability in Industry
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Graham Sherwood	Yes	N/A

Module Team Member

Contact Name	Applies to all offerings	Offerings
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Partner Module Team

Contact Name	Applies to all offerings	Offerings
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Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
Nelson and Colne College Group

Learning Methods

Learning Method Type	Hours
Lecture	48

Module Offering(s)

Offering Code	Location	Start Month	Duration
SEP-PAR	PAR	September	28 Weeks

Aims and Outcomes

Aims	<p>It is becoming evident that developed as well as emerging countries have to integrate sustainable practices in industrial environments to conserve the resources and the ecosystem of the planet for future generations. The development of science and technology has increased human capacity to extract resources from nature. It is only recently that industries are being held accountable for the detrimental effects the waste they produce has on the environment. The main aim of this module is to develop awareness and solutions to the ongoing issues and concerns of waste generated from industry. The module will cover the basic concept, principles, terminologies and systems thinking, initiating the understanding of interconnectedness among various aspects of sustainability in industrial environments.</p>
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Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Demonstrate understanding of key principles related to eco-friendly industrial setups.
MLO2	Explain sustainability metrics related to an industrial setup.
MLO3	Describe a waste management strategy for a factory.
MLO4	Formulate a feasibility report for setting up a new smart factory incorporating technical and non-technical aspects of industrial sustainability.
MLO5	Apply systems thinking to understand complex real world issues and problems associated with the development of sustainable practices in industrial environments.

Module Content

Outline Syllabus

The module will cover introductory content related to:

- o Environmental management in industries.
- o Sustainability analysis and metrics for an industrial setup.
- o Smart factory layouts. Industrial design for sustainability.
- o Six sigma and lean principles of industrial environments.
- o Circular economy principles for industrial setups.
- o Sustainable supply chain management using green logistics.
- o Industrial ecology (material and energy) and zero discharge industries.
- o Types of industrial wastes.
- o Sustainability in industrial waste management (waste minimisation, remanufacturing, reuse and recycling technologies).
- o Continuous Process Improvement mindset for incorporation sustainability in industry.
- o Ethics, legislation, standards, economics and social factors for sustainable industrial practices.
- o Industrial decarbonisation success stories.

Module Overview

Additional Information

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Report	Case Study Report	50	0	MLO3, MLO1, MLO2
Report	Individual Report	50	0	MLO4, MLO5