

# Infrastructure Design and Skills Project

## Module Information

2022.01, Approved

### Summary Information

Module Code	4509CVQR
Formal Module Title	Infrastructure Design and Skills Project
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

### Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

### Partner Teaching Institution

Institution Name
Oryx Universal College WLL

### Learning Methods

Learning Method Type	Hours
Lecture	44
Seminar	11
Workshop	11

### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-PAR	PAR	January	12 Weeks

## Aims and Outcomes

Aims	To enable the student to develop the academic and digital literacy skills necessary to perform effectively in a Higher Education context.To introduce students to their professional subject area whilst providing them with an early opportunity to engage in a collaborative environment.To develop student's self-awareness skills and introduce them to CPD and personal development planning.To introduce students to infrastructure and to explain the interlinking between the various forms of infrastructure improvement for zero carbon world and comply with the UNSDG's.To introduce the students to a systems approach to solving complex engineering problems to tackle the climate emergency, considering biodiversity and nature-based solutions.To introduce the planning, design, construction and operational activities required for civil engineering infrastructure & associated works
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**After completing the module the student should be able to:**

### Learning Outcomes

Code	Number	Description
MLO1	1	Explain the importance of sustainable infrastructure and apply a systems approach to solving complex infrastructure problems, i.e. life cycle impact of project in relation to the carbon footprint.
MLO2	2	Apply the principal features of project planning including the methods available for programming construction works.
MLO3	3	Demonstrate an understanding of civil engineering technology, practices and processes.
MLO4	4	Work and communicate professionally in a collaborative team environment, and apply professional and ethical conduct to design, demonstrating knowledge of the professional codes of conduct.
MLO5	5	Reflect upon their learning, performance and achievement and plan for their personal, educational and career development.
MLO6	6	Recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion.

## Module Content

Outline Syllabus	Theory and practice of group working. Introduction to construction programme planning. Academic Literacy, report writing, research skills, referencing, critical thinking Presentation skills. CPD and PDP, learning style, reflective practice, ICE membership requirements. What is infrastructure? Case studies of different forms of infrastructure, including road, rail, water, wastewater. Economic, ethical, legislative and social consideration to develop infrastructure technologies and processes that have reduced carbon and environmental impact. Evaluation planning tools such as PESTLE analysis and SWOT analysis. Knowledge and understanding of the issues and topics associated with sustainability and low carbon engineering. Sustainability UNSDG, definition and life cycle analysis of projects including embodied and operational carbon. Project definition, Client types; clients' requirements; briefing: time, cost, quality and functional objectives; external influences: environmental issues. Simple selection procedure. Construction methods, sequences and resources used in civil engineering projects. Use of suitable Health & Safety legislation, particularly CDM regulations, principal provisions; Safe systems of work; method statements and risk assessments. Knowledge of computer software relevant for civil engineers, such as construction programmes or BIM.
Module Overview	
Additional Information	The module introduces the students to Civil Engineering through a variety of group work tasks, mostly working in groups but with elements of individual work including personal development planning. This module also introduces students to infrastructure, partly through the use of case studies both national and international ones. They are also introduced to sustainability, and the responsibilities of Civil engineers to drive towards net zero. Students must be aware of the UNSDG's and relate their work to address them in their infrastructure projects. They are also introduced to the management of infrastructure projects.

## Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Report on Group Design Project	60	0	MLO1, MLO2, MLO3, MLO4, MLO5, MLO6
Exam	Examination	40	2	MLO1, MLO2, MLO3, MLO4

## Module Contacts

### Module Leader

Contact Name	Applies to all offerings	Offerings
Joseph Amoako-Attah	Yes	N/A

### Partner Module Team

Contact Name	Applies to all offerings	Offerings
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