

Module Code	CE7T05
Module Name	T5: Transport Design
ECTS Weighting¹	5 ECTS
Semester taught	Semester 2
Module Coordinator/s	Professor Margaret O'Mahony
Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline	On successful completion of this module, students should: LO1. Be able to apply engineering knowledge gained in other modules to formulate solutions to multidisciplinary design problems. LO2. Be able to integrate knowledge, handle complexity and formulate judgements with incomplete or limited information. LO3. Be able to identify which methods to use to solve complex design challenges. LO4. Be able to develop empathy for the user/customers who use the design. LO5. Be able to iterate through many design cycles. LO6. Can apply design methods, processes and techniques to unfamiliar, ill-defined problems. LO7. Develop the skills needed to work as individuals and/or in teams. LO8. Develop skills in presentation of an idea and solution to potential clients, both verbally and in writing. LO9. Be able to interpret the requirements from design briefs and formulate and appraise potential solutions. In the case of the design project, this involves the ability to: • Identify functional and operational requirements • Identify infrastructural requirements • Appraise the environmental and social impact of the development • Identify and appraise potential sites/routes before making selection • Develop general arrangement drawings, ensuring that the functional requirements are satisfied • Write a technical specification • Conduct detailed designs of key operational features

Graduate Attributes: levels of attainment

To act responsibly - Attained

To think independently - Enhanced

To develop continuously - Attained

To communicate effectively - Attained

Module Content

In this module, students will work individually and in teams on a transport infrastructure design project, typically a Light Rail Line. Students will be given a series of design briefs and are required to develop solutions, critiquing and refining them as the project develops.

The aim of the module is to enable the student to use the knowledge gained from other modules on the programme in an applied way in a design project. Some lectures will be provided, by staff and industry professionals, that are specific and sequenced with the required output of the project phases, but most of the timetabled hours will involve the students working on their design assignments in co-operative learning style sessions.

The first part of the module will focus on students delivering a scheme design addressing potential site/routes depending on transport demand, budget, accessibility, benefits etc having consideration for environmental and social impacts.

The second part of the module will involve students preparing designs of detailed operational elements of the scheme. The objective is to develop the student's design office skills and to challenge the students with realistic problems, sometimes with limited information, to replicate typical design office situations.

The third part of the module will involve a design change introduced to challenge the students to redesign some aspect of the scheme.

Presentation of the designs, both verbally and in writing, will be assessed.

Teaching and Learning Methods

Teaching strategies

- Problem based learning
- Cooperative learning
- Individual and group design exercises
- Presentations

Assessment Details²**Please include the following:**

- **Assessment Component**
- **Assessment description**
- **Learning Outcome(s) addressed**
- **% of total**
- **Assessment due date**

Assessment Component	Assessment Description	LO Addressed	% of total	Week due
Phase 1 Design Report	Written report	All	45	4
Phase 2 Design Report	Written report	All	40	8
Phase 3 Design Report	Written Report	All	15	11

Reassessment Requirements

Reassessment will be by means of assignments

Contact Hours and Indicative Student Workload²

Contact hours: 35

Independent Study (preparation for course and review of materials): 45

Independent Study (preparation for assessment, incl. completion of assessment): 45

Recommended Reading List

Will be provided during lectures

Module Pre-requisite**Module Co-requisite**

At least two of CE7T01, CE7T02, CE7T04, CE7C05. No exceptions to this requirement will apply.

Module Website

**Are other Schools/Departments
involved in the delivery of this module?
If yes, please provide details.**

Module Approval Date

Approved by September 2025

Academic Start Year 2025-26

Academic Year of Date