



Module Specification

Transport Engineering Design

Version: 2023-24, v3.0, 31 Jul 2023

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Part 1: Information

Module title: Transport Engineering Design

Module code: UBGLX8-15-2

Level: Level 5

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

College: Faculty of Environment & Technology

School: FET Dept of Geography & Environmental Mgmt

Partner institutions: None

Field: Geography and Environmental Management

Module type: Module

Pre-requisites: Engineering Graphics and Communication 2023-24, Engineering Principles for Civil Engineering 2023-24, Mathematics for Civil and Environmental Engineering 2023-24, Surveying 2023-24

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Module Entry Requirements:

For those not already on the BEng, or for others, A level mathematics or equivalent.

Educational aims: See Learning Outcomes

Outline syllabus: Sources of information for design including specifications and standards, and site specific parameters

The principles of geometric design for transport infrastructure

Horizontal and vertical curve design for highways and railways

Highway pavement and permanent way construction

Strength and characteristics of sub-grade

Infrastructure for preventing water ingress

Materials characteristics and selection for transport infrastructure

Part 3: Teaching and learning methods

Teaching and learning methods: The module guide will provide a programme of activities for students on a week by week basis. This will include, viewing pre-recorded teaching materials, and engaging with set problems. Sessions with students will include further illumination of challenging issues, design sessions, and design critiques.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Design highway and railway geometry according to a defined design speed, and for all types of highway user

MO2 Assess the strength and suitability of sub-grade for transport infrastructure

MO3 Specify appropriate materials for use in transport infrastructure

MO4 Understand the importance of controlling water in the vicinity of transport infrastructure

MO5 Conceive of transport design solutions and develop transport designs for open ended problems

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ubglx8-15-2.html) via the following link <https://uwe.rl.talis.com/modules/ubglx8-15-2.html>

Part 4: Assessment

Assessment strategy: The strategy is to develop skills in presenting design calculations, and dealing with complex issues, with two closed ended problems. These are (Task 1) Highway engineering design problem, and (Task 3) Closed ended railway engineering design issue.

These skills will then build the capability to tackle an open ended transport design problem involving planning, feasibility, option development and selection (Task 2).

Assessment tasks:

Set Exercise (First Sit)

Description: Closed ended railway engineering design issue requiring the submissions of a succinct technical report of an issue with appropriate tables, figures and sketches, and which explains engineering principles with clarity and accuracy. (1,500 words)

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4

Portfolio (First Sit)

Description: Open ended transport design problem involving planning, feasibility, option development and selection requiring the submission of a portfolio including a design statements, tabulations of data, drawings and explanations of solutions.

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5

Set Exercise (First Sit)

Description: Highway engineering design problem requiring the submission of succinct set of neat, accurate and logically structured calculations with appropriate sketches and cross-referenced to relevant design guidance. (Approx 10 pages in length)

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Set Exercise (Resit)

Description: Closed ended railway engineering design issue requiring the submissions of a succinct technical report of an issue with appropriate tables, figures and sketches, and which explains engineering principles with clarity and accuracy.

(1,500 words)(MO4, MO3, MO2)

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4

Portfolio (Resit)

Description: Open ended transport design problem involving planning, feasibility, option development and selection requiring the submission of a portfolio including a design statements, tabulations of data, drawings and explanations of solutions.

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5

Set Exercise (Resit)

Description: Highway engineering design problem requiring the submission of succinct set of neat, accurate and logically structured calculations with appropriate sketches and cross-referenced to relevant design guidance. (Approx 10 pages in length)(MO3, MO2, MO1)

Weighting: 25 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Civil and Environmental Engineering [Sep][SW][Frenchay][4yrs] - Not Running BEng (Hons) 2022-23

Civil and Environmental Engineering [Sep][FT][Frenchay][3yrs] - Not Running BEng (Hons) 2022-23

Civil Engineering [Frenchay] BEng (Hons) 2022-23

Civil Engineering [Frenchay] MEng 2022-23

Civil and Environmental Engineering {Foundation} [Sep][FT][Frenchay][4yrs] - Not Running BEng (Hons) 2021-22

Civil and Environmental Engineering {Foundation} [Sep][SW][Frenchay][5yrs] - Not Running BEng (Hons) 2021-22

Civil Engineering {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2021-22

Civil Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2021-22

Civil and Environmental Engineering [Sep][PT][Frenchay][7yrs] - Not Running MEng
2020-21

Civil and Environmental Engineering [Sep][PT][Frenchay][5yrs] - Not Running BEng
(Hons) 2020-21

Civil and Environmental Engineering {Apprenticeship-UWE}
[Sep][FT][Frenchay][5yrs] - Not Running BEng (Hons) 2020-21

Civil Engineering [Sep][PT][Frenchay][5yrs] BEng (Hons) 2020-21

Civil Engineering {Apprenticeship-UWE} [Sep][FT][Frenchay][5yrs] BEng (Hons)
2020-21

Civil Engineering [Sep][PT][Frenchay][7yrs] MEng 2020-21