Module Specification

Transport Modelling and Scenario Planning

Version: 2023-24, v3.0, 15 Jun 2023

Contents

Part 1: Information

Module title: Transport Modelling and Scenario Planning

Module code: UBGM8N-15-M

Level: Level 7

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Geography & Envrnmental Mgmt

Partner institutions: None

Field: Geography and Environmental Management

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Transport professionals have an important role to play in helping agencies like national and local governments make informed decisions to meet policy goals. This module introduces students to transport models as tools to explain travel patterns and forecast the impact of proposed interventions.

It has become clear in recent years that predictions from transport models can diverge greatly from outcomes. The module also critically compares transport

models to decision support approaches which recognise uncertainty like vision-led scenario planning.

Features: Not applicable

Educational aims: The aims of the module are for students to:

Learn how to develop and apply transport models as tools for understanding: (i) present travel patterns and (ii) how travel patterns may change in response to different policy scenarios.

Think critically about the limitations of models as decision support tools; and

Evaluate alternative decision support approaches, like vision-led scenario planning.

Outline syllabus: The module will include consideration of:

The role of transport models and visioning methods in transport planning
Data sources and forms of travel survey
Factors underlying travel choices and travel demand
Mainstream transport modelling (four-stage, elasticity-based)
Disaggregate choice modelling
Traffic network models
Alternative transport modelling approaches (activity-based, land use-transport interaction, dynamic)
Application of transport models to explain travel patterns and forecast the impact of interventions
Alternative approaches to modelling like vision-led scenario planning

Part 3: Teaching and learning methods

Teaching and learning methods: The module is delivered through a series of lectures, tutorials and workshops. During and between lectures students are expected to participate in solving example problems and discussing analysis approaches. Module tutors provide assistance and guidance on core mathematical

skills as appropriate.

The workshops are linked to the project coursework (discussed under assessment strategy).

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

MO1 Explain the need for transport models and forecasting methods to support decision making in transport planning

MO2 Explain the principles underlying different types of modelling, forecasting and visioning methods, evaluating: (i) their suitability for different applications and (ii) how to deal with uncertainty

MO3 Develop and apply transport models to explain travel patterns and forecast the impact of proposed interventions

MO4 Explain the principal sources of data used in transport planning and be able to design effective travel surveys

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 113 hours

Face-to-face learning = 37 hours

Total = 150

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/ubgm8n-15-m.html

Part 4: Assessment

Assessment strategy: The Assessment:

Report - The coursework project requires students to apply the theoretical principles

and analytical techniques introduced during lectures to a practice-oriented modelling exercise. The exercise requires students to use spreadsheet/statistical software to manage and analyse travel data and the use of transport modelling software to test alternative transport strategies. The project is developed in student-directed time between workshops.

Online Examination (24 hours) - tests students knowledge and analytical skills across all aspects of travel demand modelling , including their ability to perform manual calculations, to explain principles of transport modelling and to critically evaluate limitations and alternative approaches.

Resit Report - a similar brief to that described above, which may include some topic changes.

Resit Online Exam - a similar structure to that described above, which may include some question changes.

Assessment tasks:

Report (First Sit)

Description: Project Report

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3

Examination (Online) (First Sit)

Description: Online Exam (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Examination (Online) (Resit)

Description: Online Exam (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Report (Resit)

Description: Project Report

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Transport [Frenchay] MSc 2023-24

Transport Engineering and Planning [Frenchay] MSc 2023-24

Transport Engineering and Planning [Frenchay] MSc 2022-23