



Module Specification

Simulation

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Part 1: Information

Module title: Simulation

Module code: UFMF9B-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 Engineering Design & Mathematics

Partner institutions: None

Field: Engineering, Design and Mathematics

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: Not applicable

Features: In addition to the module learning outcomes, the educational experience might explore, develop, and practise (but not formally discretely assess nor require) the ability to work as a team member in a simulation project.

Educational aims: See Learning Outcomes.

Outline syllabus: What is Simulation?

Overview of Discrete-Event Simulation,

The strengths and weaknesses of DES

Application of DES. Conceptual modelling for DES

Can we use spreadsheets for DES?

Specialist software for DES.

The use of a specific DES software, such as Simul8.

Simple DES modelling.

Experimentation using DES.

Verification and Validation of DES models.

Complex DES modelling.

Part 3: Teaching and learning methods

Teaching and learning methods: The Teaching and Learning Strategy of the module will be mix of taught theory (lecture) interspersed with tutorials and learning that develop understanding of the theory and its computational implementation, all taught in the same room (a mixed classroom and computer laboratory).

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

MO1 Apply discrete-event simulation approaches to operations and engineering management.

MO2 construct a discrete-event simulation model of a system using an appropriate software such as Simul8

MO3 use a discrete-event simulation model to statistically explore the effect of model parameters and input upon the performance of the system being simulated.

MO4 Show a critical understanding of the strengths and weaknesses of the discrete-event simulation approach and methods.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 150 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/ufmf9b-15-m.html) via the following link <https://uwe.rl.talis.com/modules/ufmf9b-15-m.html>

Part 4: Assessment

Assessment strategy: The assessment will be an individual project assignment based on a scenario either proposed by the tutor or encountered in the student's workplace.

The assignment will require demonstration of independent learning of theory, system modelling, computational implementation, statistical analysis of results, and critical reflection of their work captured in a 3000 word report.

The referred assignment will involve a reworking of the 1st sit submission.

Assessment tasks:**Project (First Sit)**

Description: Project (3000 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Project (Resit)

Description: Project (3000 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Engineering Management [Frenchay] MSc 2023-24

Engineering Management [Frenchay] MSc 2023-24

Engineering Management [GCET] MSc 2023-24

Engineering Management [GCET] MSc 2023-24

Engineering Management [Frenchay] MSc 2022-23

Engineering Management [GCET] MSc 2022-23