



Module Specification

Hydraulic Modelling for Flood Risk Management

Version: 2023-24, v4.0, 18 Apr 2023

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Part 1: Information

Module title: Hydraulic Modelling for Flood Risk Management

Module code: UBGMX9-15-3

Level: Level 6

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Geography & Environmental Mgmt

Partner institutions: None

Field: Geography and Environmental Management

Module type: Module

Pre-requisites: Hydraulics and Engineering Applications 2023-24, Hydrology and Flood Risk Estimation 2023-24

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module will introduce you to the fundamentals of hydraulic modelling in river channel and floodplain settings for the purposes of flood risk management

Features: Not applicable

Educational aims: See learning outcomes

Outline syllabus: The representation of fluid mechanics in hydraulic models and the fundamental principles of hydraulic modelling.

Data requirements and sources for hydraulic models and the representation of structures and channel and floodplain features in these models.

The process of building, calibrating and testing a hydraulic model.

The identification of sources of uncertainty and the limitations of hydraulic modelling.

The application of a hydraulic model to solve an engineering problem.

This module will be taught through a series of lectures, supported by tutorial sessions where students will apply the theory learnt to engineering problems.

Part 3: Teaching and learning methods

Teaching and learning methods: See assessment strategy

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

MO1 Explain the risk of flooding to a range of receptors and mitigation processes.

MO2 Explain the fundamental principles of hydraulic modelling in flood risk management, including data sources, the model building and testing process, and application of hydraulic models

MO3 Interpret the outputs of hydraulic models and model products (maps of flood hazard and extent)

MO4 Evaluate the sources of uncertainty, limitations and design processes to improve a hydraulic model.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 102 hours

Face-to-face learning = 48 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/ubgmx9-15-3.html) via the following link <https://uwe.rl.talis.com/modules/ubgmx9-15-3.html>

Part 4: Assessment

Assessment strategy: Portfolio- Component A (3000 words). Learning outcomes 1-4

The portfolio consists of a series of practical activities completed that tests the student's ability to undertake fundamental hydrological modelling and contextualise this in relation to solving flood risk management processes. The rationale for this approach is to keep the student engaged and represents an assessment for learning approach as student receives formative and summative feedback throughout the learning.

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

Description: Portfolio (3000 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Portfolio (Resit)

Description: Portfolio (3000 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Civil Engineering [Sep][FT][Frenchay][4yrs] MEng 2021-22

Civil and Environmental Engineering [Sep][FT][Frenchay][3yrs] - Not Running BEng (Hons) 2021-22

Civil Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2021-22

Civil and Environmental Engineering [Sep][SW][Frenchay][5yrs] - Not Running MEng 2020-21

Civil and Environmental Engineering [Sep][SW][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Civil and Environmental Engineering {Foundation} [Sep][FT][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Civil Engineering {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2020-21

Civil Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2020-21

Civil Engineering [Sep][SW][Frenchay][5yrs] MEng 2020-21

Civil and Environmental Engineering [Sep][PT][Frenchay][5yrs] BEng (Hons) 2019-20

Civil and Environmental Engineering {Apprenticeship-UWE} [Sep][FT][Frenchay][5yrs] BEng (Hons) 2019-20

Civil and Environmental Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20

Civil and Environmental Engineering [Sep][PT][Frenchay][7yrs] MEng 2019-20