



Module Specification

Water and Wastewater Engineering

Version: 2023-24, v2.0, 25 Jul 2023

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Part 1: Information

Module title: Water and Wastewater Engineering

Module code: UBGMTN-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 & Environmental 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: Not applicable

Features: Not applicable

Educational aims: See Learning Outcomes

Outline syllabus: Water treatment design:

Design of conventional treatment processes – aeration, coagulation, flocculation, sedimentation, clarification, filtration, floatation, disinfection.

Wastewater treatment design:

Preliminary treatment – screening, grit removal, odour control, flow equalization; primary treatment; Biological processes – attached growth and suspended growth processes, anaerobic processes and sludge treatment; land based and on-site treatment facilities.

Advanced treatment technology:

Suspended solids removal – granular media filtration, filtration and chlorination for virus removal, carbon adsorption; nutrient removal – biological and chemical phosphorous removal, biological nitrification, denitrification and ammonia stripping; reduction of dissolved salts – distillation, reverse osmosis and electro analysis.

Part 3: Teaching and learning methods

Teaching and learning methods: Student time will be allocated as follows:

Lectures: 54 hours

Tutorials/project follow-up: 21 hours

Directed learning: 12 hours

Summative assessment: 23 hours

Self directed learning: 40 hours

Total student hours: 150 hours

Scheduled learning includes lectures, seminars, tutorials, project supervision, demonstration, practical classes and workshops; fieldwork; external visits; work based learning; supervised time in studio/workshop.

Independent learning includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc.

The module will be delivered by means of a series of lectures and problem-solving tutorial sessions.

The lecture course primarily introduces the basic unit processes that are used in the treatment of water and wastewater, the standards applied. A number of additional reading materials are provided to help reinforce the basic material covered in the lecture course.

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

MO1 Select from a range a series of appropriate unit processes for a particular water and wastewater treatment

MO2 Carry out correct context design, process design and capacity calculations

MO3 Critically analyze problems that may arise in the operation of water and wastewater treatment plant

MO4 Demonstrate the ability to critically review process design of water and wastewater treatment processes

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 63 hours

Face-to-face learning = 66 hours

Total = 150

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

Part 4: Assessment

Assessment strategy: The strategy has been chosen to ensure that fundamental engineering principles are assessed under controlled conditions, while a more open ended research based assignments are used to encourage wider engagement and reflection on this topic

Assessment is based on a written examination and a project report of 3000 words. For the project students are expected to submit individual reports.

The examination assesses the students' knowledge and understanding and the project assesses their ability to apply their knowledge and understanding within the context of specific situation.

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For the examination worksheets which build on the lecture content are discussed during tutorial sessions. Introductory and follow-up tutorials support the project. Students are encouraged to attend all tutorial sessions these provide the opportunity for students to gain formative feedback.

Assessment tasks:

Examination (First Sit)

Description: Examination (150 minutes)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Report (First Sit)

Description: Report (3000 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Examination (Resit)

Description: Examination (150 minutes)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Report (Resit)

Description: Report (3000 words)

Weighting: 50 %

Final assessment: No

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 [Jan][FT][Northshore][4yrs] - Not Running MEng 2020-21