MODULE SPECIFICATION

Part 1: Information			
Module Title	Water and Wastewater Engineering		
Module Code	UBGMTN-15-M	Level	Level 7
For implementation from	2019-20		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Geography and Environmental Management
Department	FET Dept of Geography & Envrnmental Mgmt		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

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.

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.

Part 3: Assessment

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.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Report - Component B		50 %	Report (3000 words)
Examination - Component A	✓	50 %	Examination (150 minutes)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Report - Component B		50 %	Report (3000 words)
Examination - Component A	✓	50 %	Examination (150 minutes)

Part 4: Teaching and Learning Methods

Learning Outcomes

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

Module Learning Outcomes	Reference
Select from a range a series of appropriate unit processes for a particular water and wastewater treatment	MO1
Carry out correct context design, process design and capacity calculations	MO2
Critically analyze problems that may arise in the operation of water and wastewater treatment plant	MO3
Demonstrate the ability to critically review process design of water and wastewater treatment processes	MO4

Contact Hours

Independent Study Hours:	
Independent study/self-guided study	63
Total Independent Study Hours:	63
Scheduled Learning and Teaching Hours:	
Face-to-face learning	66
Tutorials	21
Total Scheduled Learning and Teaching Hours:	87
Hours to be allocated	150
Allocated Hours	150

Reading List

The reading list for this module can be accessed via the following link:

https://uwe.rl.talis.com/index.html

Part 5: Contributes Towards

This module contributes towards the following programmes of study: