



MODULE SPECIFICATION

Part 1: Information			
Module Title	Hydrology and Flood Risk Estimation		
Module Code	UBGMTQ-15-2	Level	Level 5
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 & Environmental Mgmt		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Overview: This module will introduce you to the fundamentals of hydrology and flood risk estimation.</p> <p>Educational Aims: See Learning Outcomes.</p> <p>Outline Syllabus: You will cover:</p> <p>Interpretation and assessment of each element of the hydrological cycle (precipitation, evaporation, interception, infiltration and soil moisture redistribution, groundwater, runoff).</p> <p>Streamflow analysis techniques (flow duration curves, flood frequency analysis, unit hydrographs).</p> <p>Modelling terminology, concepts and processes. Types of hydrological modelling.</p> <p>Flooding and flood estimation in gauged and ungauged catchments (simple methods, evolution of approaches, Flood Estimation Handbook statistical and rainfall-runoff methods, greenfield runoff estimation).</p> <p>Practical application of methods/models in engineering hydrology.</p>

STUDENT AND ACADEMIC SERVICES

Teaching and Learning Methods: 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: Assessment

Component A - Examination. Learning outcomes 1 - 3.

Component A will be assessed via a 2 hour exam. The emphasis of the exam will be on testing theory and understanding of processes.

Component B carries a higher weighting (60%) and will focus on practical skills and technical writing.

Component B – Portfolio (3000 words). Learning outcomes 1, and 4 - 7. The portfolio consists of a series of practical activities completed throughout the module and a synoptic report that tests the student's ability to undertake fundamental hydrological analysis and contextualise this in relation to catchment scale processes. The rationale for this approach is to keep the student engaged and represents an assessment for learning approach as they receive formative and summative feedback throughout the learning.

First Sit Components	Final Assessment	Element weighting	Description
Portfolio - Component B	✓	60 %	Portfolio (3000 words)
Examination - Component A		40 %	Examination (2 hours)
Resit Components	Final Assessment	Element weighting	Description
Portfolio - Component B	✓	60 %	Portfolio (3000 words)
Examination - Component A		40 %	Examination (2 hours)

STUDENT AND ACADEMIC SERVICES

Part 4: Teaching and Learning Methods																	
Learning Outcomes	<p>On successful completion of this module students will achieve the following learning outcomes:</p> <table border="1"> <thead> <tr> <th style="text-align: left;">Module Learning Outcomes</th> <th style="text-align: left;">Reference</th> </tr> </thead> <tbody> <tr> <td>Source, analyse and interpret meteorological and hydrological data</td> <td>MO1</td> </tr> <tr> <td>Provide estimates of design rainfall</td> <td>MO2</td> </tr> <tr> <td>Explain and quantify the processes involved in the hydrological cycle, particularly runoff generation and flooding</td> <td>MO3</td> </tr> <tr> <td>Analyse streamflow data to determine flow characteristics (flow duration curves, unit hydrographs)</td> <td>MO4</td> </tr> <tr> <td>Perform flood frequency analysis on recorded flow data</td> <td>MO5</td> </tr> <tr> <td>Undertake flood estimation in ungauged catchments, including use of FEH methods and estimation of greenfield discharge</td> <td>MO6</td> </tr> <tr> <td>Use hydrological techniques to solve engineering problems</td> <td>MO7</td> </tr> </tbody> </table>	Module Learning Outcomes	Reference	Source, analyse and interpret meteorological and hydrological data	MO1	Provide estimates of design rainfall	MO2	Explain and quantify the processes involved in the hydrological cycle, particularly runoff generation and flooding	MO3	Analyse streamflow data to determine flow characteristics (flow duration curves, unit hydrographs)	MO4	Perform flood frequency analysis on recorded flow data	MO5	Undertake flood estimation in ungauged catchments, including use of FEH methods and estimation of greenfield discharge	MO6	Use hydrological techniques to solve engineering problems	MO7
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Reading List	<p>The reading list for this module can be accessed via the following link:</p> <p>https://uwe.rl.talis.com/modules/ubgmtq-15-2.html</p>																

Part 5: Contributes Towards
<p>This module contributes towards the following programmes of study:</p> <p>Civil and Environmental Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2018-19</p> <p>Civil and Environmental Engineering [Sep][FT][Frenchay][4yrs] MEng 2018-19</p> <p>Civil and Environmental Engineering [Sep][SW][Frenchay][5yrs] MEng 2018-19</p> <p>Civil and Environmental Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2018-19</p>