



MODULE SPECIFICATION

Part 1: Information			
Module Title	Catchment Hydrology		
Module Code	UBGMJK-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 & Environmental Mgmt		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Educational Aims: See Learning Outcomes</p> <p>Outline Syllabus: Hydrological cycle: measurement and estimation of precipitation, interception, evaporation, infiltration, percolation and soil moisture redistribution, groundwater, runoff mechanisms and channel flow.</p> <p>Analysis of gauged daily flow records to derive estimates of catchment yield, flow duration curves, indicators of flow and other descriptors of hydrological response. Approaches to water resources management.</p> <p>Analysis of the annual maximum series for flood frequency analysis; partial duration series and low flow analysis. Approaches and techniques in flood risk management.</p> <p>Climate change, land use change and associated hydrological impacts; assessing and quantifying change in a catchment. Risk, sensitivity to change and water security.</p> <p>Modelling approaches, models, their uses and limitations.</p>

STUDENT AND ACADEMIC SERVICES

Teaching and Learning Methods: Learning resources are structured as a set of 6 units of study, each approximately equivalent to 2 days of study (12 hours). The e-learning resources provide a framework for engaging with the core text and other materials, and consist of a series of staged readings and activities. Activities might include data analysis, writing responses to challenging questions, and web-based activities. Activities could also include working through an animated audio presentation or watching a podcast or video. Some guided practicals with context sensitive help may also be provided.

At the end of each unit of study students submit a pre-defined selection of these activities for formative evaluation. Detailed written feedback will be provided by the tutor to help guide the learner towards the assessed coursework. The majority of formative exercises build towards what is expected in the assessed coursework.

As this is a distance learning module, the principal mode of contact is via email and telephone. For students based locally, personal tutorials to discuss progress and problems can also be made. As this is a 15c module, total student effort of 150 hours is expected.

Nominal hours:

Directed independent learning: 72 hours (Independent learning)

Independent research: 38 hours (Independent learning)

Assessment: 40 hours (Independent learning)

Part 3: Assessment

Summative assessment:

The assessment for this module is a critical review of the hydrology and water resources of a particular catchment in the form of a professional technical report, to publication standards. Students are required to select a chosen catchment and then submit exercises in relation to this catchment on a regular basis. Each student therefore works on a different catchment. These exercises form part of the P/F portfolio, but are also the key mechanism for ensuring that the work is the students own. Although there are no directly controlled conditions for the assessment, this addressed through the continuous dialogue between tutor and student, similar to that in a dissertation.

Component A – (100% of the mark)

Assessment criteria:

The report must demonstrate competence in key analytical skills for water resource and flood risk assessment, as well as a systems understanding of the relationship between catchment characteristics and hydrological responses.

The report must include an evaluation of sensitivity to anthropogenic change and potential climate change impacts.

Relevant catchment-specific themes in hydrology must be addressed for example, water security, surface water control and flood risk management, ecological flows, abstraction planning and drought management.

The report must be to professional technical standards with thorough source attribution and clarity in communication.

Component B – Pass/Fail

Learning is packaged into a series of units, each of which has a piece of work that must be submitted sequentially as part of the P/F portfolio. At an early stage a catchment is selected. All subsequent exercises involve relating the theoretical aspects covered in the learning to the selected catchment. Some require analysis of gauged daily flow and development of flow duration curves, others on the use of the annual maximum series to estimate flood frequency and assess flood risk. In order to pass the portfolio it must be clear from the evidence presented that students have engaged fully with all activities and that all technical competencies have been achieved.

Formative assessment

STUDENT AND ACADEMIC SERVICES

Each set of exercises is submitted for formative evaluation and detailed written feedback is provided. Although the purpose of their submission is formative feedback, they are assessed on a P/F basis. This is to avoid the situation of students just submitting a technical report without engaging in the learning process. This also helps confirm that the summative assessment constitutes the student's own work.

First Sit Components	Final Assessment	Element weighting	Description
Report - Component A	✓	100 %	Technical Report not exceeding 4000 words (excl tables, figures, refs)
Portfolio - Component B		0 %	Portfolio of preparatory tasks: pass/fail
Resit Components	Final Assessment	Element weighting	Description
Report - Component A	✓	100 %	Technical Report not exceeding 4000 words (excl tables, figures, refs)
Portfolio - Component B		0 %	Portfolio of preparatory tasks: pass/fail

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
	Identify and critically evaluate key hydrological processes within a given catchment and the factors influencing them.	MO1
	Demonstrate an understanding of the principal methods for the collection of hydrological data and their limitations	MO2
	Use a range of techniques to quantify and/or estimate hydrological processes, quantify water resources and estimate flood magnitudes	MO3
	Demonstrate a systems understanding of the hydrological characteristics and responses of a catchment.	MO4
	Demonstrate an understanding of the scope, purpose, utility and limitations of hydrological modelling approaches in water resources management.	MO5
	Critically assess and articulate the consequences of human activity and climate change on hydrological processes, water resources and water security.	MO6
	Prepare a professional technical report to publication standards	MO7
Contact Hours	Independent Study Hours:	
	Independent study/self-guided study	150
	Total Independent Study Hours:	150
	Hours to be allocated	150
	Allocated Hours	150
Reading List	<p>The reading list for this module can be accessed via the following link:</p> <p>https://uwe.rl.talis.com/index.html</p>	

Part 5: Contributes Towards
This module contributes towards the following programmes of study: