

Module Title:	Environmental Hydraulics II
Language of Instruction:	English
Credits:	5
NFQ Level:	8
Module Delivered In	1 programme(s)
Teaching & Learning Strategies:	Lectures; Project work; Practical's / Site visits; Private study
Module Aim:	The aims of Hydraulics portion of this module is: (1) to develop students application of the concepts of hydraulic design. The aims of Environmental Engineering portion of this module are: (1) To enable the learner to understand the development and treatment needs of water sources together an appreciation of source protection methods as an alternative to treatment.(2) Understand the principles of wastewater treatment and disposal

Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	participate in the design of water & wastewater systems
LO2	assist in the preparation and issuing of a discharge license
LO3	examine, identify & use appropriate methods & sustainable drainage systems for application to new & broadly-defined storm drainage problems;
LO4	select & apply appropriate communication tools to present technical information on drainage systems, its components &/or design process.

Pre-requisite learning
Module Recommendations <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>
No recommendations listed
Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>
Environmental Engineering I

Module Content & Assessment

Indicative Content

(1) Storm-water drainage Design

(a) Hydrological cycle (b) Average Rainfall Intensity Method (c) Rainfall frequency-intensity-duration method (d) Rational & Modified Rational Methods (e) Time-Area Method (f) Unit Hydrograph theory & rainfall-run-off model (g) Climate Change (h) Storm Attenuation & Flood Routing (i) SUDS (j) Culvert flow

(2) Development of Water Sources

(a) Legislation controlling water abstraction (b) Design of surface water and groundwater intakes (c) Design principles of unit processes (d) Use of source protection as an alternative to treatment

(3) Wastewater Treatment Disposal

(a) Unit process design principles (b) Dilution assessment – assimilation capacity (c) Discharge licenses

Assessment Breakdown

	%
Project	40.00%
End of Module Formal Examination	60.00%

No Continuous Assessment

Project

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	No Description	1,2,3,4	40.00	Sem 1 End

No Practical

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	No Description	1,2,3	60.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Practicals	12 Weeks per Stage	0.50
Lecture	12 Weeks per Stage	3.50
Estimated Learner Hours	12 Weeks per Stage	6.50
Total Hours		126.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_CMHCE_B	Bachelor of Engineering (Honours) in Civil Engineering	8	Mandatory