ENGR H5506: Hydraulics II

Module Title:	Hydraulics II
Credits:	5
NFQ Level:	8
Module Delivered In	2 programme(s)
Teaching & Learning Strategies:	Lectures Project Work Private Study
Module Aim:	The aims of this module is: (1) to develop students application of the concepts of hydraulic design

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	describe succinctly, the relevant advantages & disadvantages of sewerage systems.
LO2	compare & critically evaluate (a) the framework of relevant legal requirements for the treatment & disposal of Wastewater. (b) the codes of practice & industry standards & the need for their application.
LO3	examine, identify & use appropriate (a) methods for application to new & broadly-defined storm & foul drainage problems. (b) methods for application to new & existing broadly-defined flood problems. (c) methods for application to new & existing broadly-defined hydrology & river engineering problems.
LO4	assess the appropriate sustainable drainage systems to new & existing broadly-defined storm drainage problems.
LO5	select & apply appropriate communication tools to present technical information on drainage systems, its components &/or design process.

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

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Module Content & Assessment

Indicative Content
(1) Basic Principles of Design Sewers (a) Sewerage systems (b) System Components (c) Layout of Sewers
(2) Legislation on Treatment & Disposal of Wastewater (a) Water Framework Directive (b) EPA Acts (c) EC (Drinking Water) Regulations
(3) Engineering Hydrology & River Engineering (a) Hydrological cycle (b) Methods of flood prediction (c) Rational & Modified Rational Methods (d) Time-Area Method (e) Unit Hydrograph theory & rainfall-run-off model (f) Statistical analysis of river flow data (g) Water supply reservoirs & Flood Routing (h) Culvert flow (i) Climate Change
(4) Storm-water drainage Design (a) Average Rainfall Intensity Method (b) Rainfall frequency-intensity-duration method (c) Storm Attenuation (d) SUDS (e) Soak-away tests
(5) Foul sewer Drainage Design (a) Water Consumption Method (b) Discharge Unit Method
(6) Pumping Station Design (a) Hydraulic gradient in pump-pipeline systems (b) Multiple pump systems (c) Pump performance (d) Pump selection

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	1,2,3,4,5	40.00	n/a

No Practical

End of Module Formal Examination				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	No Description	1,2,3,4,5	60.00	End-of-Semester

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

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Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	30 Weeks per Stage	2.00
Estimated Learner Hours	30 Weeks per Stage	2.50
	Total Hours	135.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_CMHCE_B	Bachelor of Engineering (Honours) in Civil Engineering - Ab Initio	7	Mandatory
CW_CMCEN_B	Bachelor of Engineering (Honours) in Civil Engineering - Add On	3	Mandatory