

ENGR H5505: Environmental Engineering II

March 1. This			
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Language o	f Instruction	n:	English
Credits:		5	
NFQ Level:		8	
Module Deli	vered In		2 programme(s)
Teaching & Strategies:	Learning		Lectures0- 60 hours; Project work- 30 hours; Practicals / Site visits- 30 hours; Private study - 90 hours
Module Aim	:		The aims of this module are: 1) to extend the learner's knowledge base in Environmental Engineering, building on the knowledge introduced in Environmental Engineering I; 2) to enable the learner to apply this scientific knowledge to the design and construction of sustainable water supply and wastewater treatment systems; 3) To enable the learner to collate and interpret hydrological data; 4) To give the learner an appreciation of source protection methods as an alternative to treatment. 5) To enable the learner to participate in flood risk assessment and management
Learning Ou	itcomes		
On successfi	ul completio	n of th	nis module the learner should be able to:
LO1	Participate	in the	e collation, assessment and interpretation of hydrological data and assist in the assessment of flood risk
LO2	Assess & c	quanti	fy surface water and groundwater sources and contribute to the design of production boreholes and intakes
LO3	Participate	in the	e design of water & wastewater systems
LO4	Assist in th	ne pre	paration and issuing of a discharge licence
LO5	Work as pa	art of	a design team
LO6	Be confide	nt in v	written and verbal communication
Pre-requisite	e learning		
Module Rec This is prior l	ommendati earning (or a	ons a prac	ctical skill) that is recommended before enrolment in this module.
No recomme	ndations list	ed	
Incompatibl These are m	e Modules odules whicl	h have	e learning outcomes that are too similar to the learning outcomes of this module.
No incompat	ible modules	s liste	d
Co-requisite	Modules		
No Co-requis	ite modules	listec	1
Requiremen This is prior l	ts earning (or a	a prac	ctical skill) that is mandatory before enrolment in this module is allowed.
Environment	al Engineerii	ng l	



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Module Content & Assessment

Indicative Content

1. Elements of the Hydrological Cycle

a. Precipitation analysis, b.Water Balance Assessment, c. Extreme event analysis

2. Assessment of Surface Water Sources

a. Volume assessment b. Baseflow c. Dry weather flows d. Catchment assessment e. Baseline water quality f. Flood Risk Assessment

3. Groundwater Hydrology a. Desk-top study, Interrogation of web based databases b. Geological field assessment c. Application of Geophysical surveys to groundwater assessments d. Trial well drilling e. Aquifer assessment f. Well testing g. Baseline water quality

4. Development of Water Sources a. Legislation controlling water abstraction b. Design of surface water and groundwater intakes c. Design principles of unit processes

4. Source Protection

a. Catchment protection b. Control of polluting activities c. Protection schemes d. Cryptosporidium risk assessment

5. Wastewater and Storm Water Disposal

a. Unit process design principles b. Dilution assessment – assimilation capacity c. Discharge licences d, SUD's principles, attenuation design

Assessment Breakdown	%
Continuous Assessment	10.00%
Project	20.00%
Practical	10.00%
End of Module Formal Examination	60.00%

Continuous Assessment

Continuous Assessment				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	Term 1 Exam	1,2	5.00	n/a
Examination	Term 2 Examination	3,4	5.00	n/a

Project				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	No Description	1,2,3,4,5,6	20.00	Sem 1 End

Practical				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Practical work	1,2,3	10.00	n/a

End of Module Formal Examin	of Module Formal Examination			
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	No Description	1,2,3,4	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
Practicals	30 Weeks per Stage	0.33
Lecture	30 Weeks per Stage	1.67
Estimated Learner Hours	30 Weeks per Stage	4.17
	Total Hours	185.00

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	