

Full Title:	Environmental Engineering
Language of Instruction:	English
Module Code:	CENG E7012
Credits:	10
Valid From:	Semester 1 - 2014/15 (September 2014)
Module Delivered in	1 programme(s)
Module Description:	Environmental engineering is a multidisciplinary subject that combines the traditional preserves of civil and chemical engineering with the sciences of chemistry, biology, microbiology, ecology, geology and soils. This module provides a comprehensive introduction to environmental engineering and science. It provides a thorough quantitative treatment and emphasizes the multidisciplinary nature of environmental management issues.
Learning Outcomes:	
<i>On successful completion of this module the learner should be able to</i>	
<ol style="list-style-type: none"> 1. Discover the various technologies available to us within the renewable energies industry 2. Express a knowledge of chemical and biological parameters in water and wastewater analysis 3. Recognize the appropriate practices now associated with modern solid waste management 4. Identify our obligations as engineers with regard to ethics and sustainability 5. Demonstrate an ability to design and detail water supply schemes, wastewater and stormwater drainage schemes 6. Prepare designs for water treatment plants and wastewater treatment systems 7. Evaluate the level of 'risk' to the environment associated the varying issues within a modern society. 8. Model various hydrological situations through experimentation 	

Module Content & Assessment

Indicative Content
<p>Water Sourcing and Quality Hydrology, groundwater and abstraction, surface water and capturing, sampling procedures. Physical characteristics of water, Chemical characteristics of water, Biological characteristics of water, Chemistry of water treatment.</p>
<p>Water Treatment and Distribution domestic well treatment, traditional and advanced water treatment plants and design, water demands, distribution practice, pipes, valves and fittings, trunk main design, service reservoirs, system design and analysis, pumped water, water conservation.</p>
<p>Storm water Management understanding rainfall, designing piped systems, sustainable urban drainage systems, flooding and flood management,</p>
<p>Risk Management What is risk, what is risk management, the need for risk management, risk management systems, evaluating and prioritizing risk, insuring against risk</p>
<p>Wastewater collection and Treatment Quantifying discharge, grey water recycling, designing foul drainage systems, domestic treatment systems, traditional and advanced waste water treatment processes and design</p>
<p>Solid Waste Management Municipal solid waste, industrial solid waste, collection, management hierarchy, landfill, incineration, reduction, recycling, reuse</p>
<p>Renewable Energies Solar, wind, water, biomass, geothermal</p>
<p>Ethics of 'Green' Engineering Green Engineering, motivations, legal considerations, financial considerations, ethical considerations</p>

Assessment Breakdown	%
Course Work	30.00%
End of Module Formal Examination	70.00%

Full Time

Course Work							
Assessment Type	Assessment Description	Outcome addressed	% of total	Marks Out Of	Pass Marks	Assessment Date	Duration
Class Test	The course work will consist of between 5 and 8 laboratory based experimentation focusing on elements of water supply and treatment, wastewater treatment and flooding.	2,5,6,8	30.00	0	0	n/a	0

No Project

No Practical

No End of Module Formal Examination

Reassessment Requirement
<p>A repeat examination <i>Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.</i></p>
<p>Reassessment Description The form of reassessment has been more clearly articulated in all relevant module descriptors. Students shall be offered appropriate alternative assessments in place of recoverable elements of coursework. Elements of coursework which the programme board have agreed are non-recoverable are clearly communicated to students.</p>

DKIT reserves the right to alter the nature and timings of assessment

Module Workload & Resources

Workload: Full Time

Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	No Description	2.00	Every Week	2.00
Tutorial	No Description	1.00	Every Week	1.00
Practical	No Description	2.00	Every Week	2.00
Total Weekly Learner Workload				5.00
Total Weekly Contact Hours				5.00

This course has no Part Time workload.

Resources

Recommended Book Resources

Twort, Ratnayaka and Brandt 2000, *Water Supply*, 5th Ed., Arnold [ISBN: 978-0340720189]

Peavy 1987, *Environmental Engineering*, 7th Ed., McGraw Hill [ISBN: 978-0071002318]

McGhee 1991, *Water Supply and Sewerage*, 6th Ed., McGraw Hill [ISBN: 978-0071008235]

American PublicHealth Association 2012, *Standard methods of the examination of water and wastewater*, 22nd Ed., Clearway Logisitcs [ISBN: 978-0875530130]

Butler and Davies 2010, *Urban Drainage*, 3rd Ed., Spon Text [ISBN: 978-0415455268]

This module does not have any article/paper resources

Other Resources

Website: Environmental Protection Agency (Ireland) 2014, *EPA.ie*
http://www.epa.ie/irelandsenvironment/#_U38d91PAG_E

Module Delivered in

Programme Code	Programme	Semester	Delivery
DK_ECIVL_7	Bachelor of Engineering in Civil Engineering	5	Mandatory