ENGY H3005: Fluid Mechanics 2

Module Title:	Fluid Mechanics 2
Language of Instruction:	English

Credits:	5

NFQ Level:	7

Module Delivered In	2 programme(s)

Module Aim:	To provide students with an understanding of the behaviour of fluids in engineering systems and processes.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Analyse the types and characteristics of flow within a pipe.
LO2	Apply simplified fluid dynamic models to representative systems in order to determine the steady state performance of such systems.
LO3	Analyse the performance of pumps and fans in terms of the systems in which they are operating.
LO4	Design pipe and duct networks for the distribution of liquids and air.
LO5	Quantify by calculation and experimental measurement the characteristics of fluid dynamic processes.

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
Fluid Dynamics - Fluid Friction Pressure drops/Head Losses, Primary losses, Secondary losses, Equivalent lengths, System characteristics.
Centrifugal pumps & fans Pump/Fan Characteristics & performance, Pump/Fan selection, Series & Parallel Pumping.
Analysis of pipe and conduit systems Pressure drop in non circular ducts, Duct design methodologies.
Differential analysis of fluid flow. Continuity equation, Momentum equation, Navier–Stokes equations, Introduction to Computational Fluid Dynamics.

Assessment Breakdown	%
Continuous Assessment	10.00%
Practical	30.00%
End of Module Formal Examination	60.00%

Continuous Assessment				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Examination	Class Test	1,2,3	10.00	Week 6

No Project

Practical				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	Computer Competencies Assignment	1,2,3	10.00	Week 9
Practical/Skills Evaluation	Fluid Mechanics Labs: Darcy's Formula, Secondary losses, Fluid Momentum, Series & Parallel pumping	1,2,3,5	20.00	n/a

End of Module Formal Examination				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	n/a	1,2,3,4	60.00	End-of-Semester

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

Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	12 Weeks per Stage	4.00
Laboratory	12 Weeks per Stage	1.00
Independent Learning	15 Weeks per Stage	4.33
	Total Hours	125.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EMMEC_B	Bachelor of Engineering (Honours) in Mechanical Engineering	5	Mandatory
CW_EEMEC_D	Bachelor of Engineering in Mechanical Engineering	5	Mandatory