

<b>Module Title:</b>	Fluid Mechanics 2
<b>Language of Instruction:</b>	English
<b>Credits:</b>	5
<b>NFQ Level:</b>	7
<b>Module Delivered In</b>	<a href="#">2 programme(s)</a>
<b>Module Aim:</b>	To provide students with an understanding of the behaviour of fluids in engineering systems and processes.
<b>Learning Outcomes</b>	
<i>On successful completion of this module the learner should be able to:</i>	
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.
<b>Pre-requisite learning</b>	
<b>Module Recommendations</b> <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>	
No recommendations listed	
<b>Incompatible Modules</b> <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>	
No incompatible modules listed	
<b>Co-requisite Modules</b>	
No Co-requisite modules listed	
<b>Requirements</b> <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>	
No requirements listed	

## 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**

<b>Workload: Full Time</b>		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
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	<a href="#">Bachelor of Engineering (Honours) in Mechanical Engineering</a>	5	Mandatory
CW_EEMEC_D	<a href="#">Bachelor of Engineering in Mechanical Engineering</a>	5	Mandatory