

Module Title:	Engineering Mathematics 3
Language of Instruction:	English
Credits:	5
NFQ Level:	7
Module Delivered In	3 programme(s)
Teaching & Learning Strategies:	(a) A series of lectures will be delivered using whiteboard and data projector. (b) The Institute Virtual Learning Environment (VLE) will be used to interactively communicate with students e.g. on-line test, discussion forums, reference information
Module Aim:	To give the students the knowledge, competencies and skills necessary to support the mathematical procedures encountered in the other modules of this course.
Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Solve Second order differential equations.
LO2	Solve initial value problems through the application of Laplace transforms.
LO3	Analyse periodic waveforms through the application of Fourier series.
Pre-requisite learning	
Module Recommendations	
<i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>	
No recommendations listed	
Incompatible Modules	
<i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements	
<i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>	
Mathematics 2 or equivalent	

Module Content & Assessment
Indicative Content
A. Differential Equations

Solve second order homogeneous and non-homogeneous differential equations.

B. Fourier Series

Recognise periodic functions. Even and odd functions. Be able to obtain the Fourier Series of a periodic function. Derive half-range sine and cosine series

C. Laplace Transforms

Find the Laplace Transform of standard functions. Find inverse Laplace Transforms. Find the Laplace Transform of derivatives and use Laplace Transforms to solve IVP's.

Assessment Breakdown	%
Continuous Assessment	40.00%
End of Module Formal Examination	60.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	A number of CA's will be evenly spaced throughout the Semester to allow timely feedback to be provided".	1,2,3	40.00	n/a

No Project

No Practical

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	Each student will sit a formal written examination at the end of the module for which 60% will be awarded.	1,2,3	60.00	End-of-Semester

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	A number of CA's will be evenly spaced throughout the Semester to allow timely feedback to be provided".	1,2,3	40.00	n/a

No Project

No Practical

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
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SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Every Week	3.00
Independent Learning	Every Week	4.00
Total Hours		7.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EEBEE_B	<u>Bachelor of Engineering (Honours) in Biomedical Electronics</u>	5	Mandatory
CW_EESYS_B	<u>Bachelor of Engineering (Honours) in Electronic Engineering</u>	5	Mandatory
CW_EEBEE_D	<u>Bachelor of Engineering in Biomedical Electronics</u>	5	Mandatory