



Title:	Technological Maths 2 (Elec)	APPROVED
Long Title:	Technological Maths 2 (Elec)	
Module Code:	MATH6045	
Credits:	5	
NFQ Level:	Fundamental	
Field of Study:	Mathematics	
Valid From:	Semester 1 - 2014/15 ( September 2014 )	
Module Delivered in	<a href="#">6 programme(s)</a>	
Module Coordinator:	AINE NI SHE	
Module Author:	DONAL G O SHEA	
Module Description:	Technological Maths for students of Electrical and Electronic Engineering.	
Learning Outcomes		
On successful completion of this module the learner will be able to:		
LO1	Perform complex number operations and apply complex expressions to problems in electrical and electronic engineering.	
LO2	Differentiate functions by rule.	
LO3	Apply differentiation to tangents, rates of change and optimisation.	
LO4	Integrate functions using a table of standard integrals and by substitution.	
LO5	Apply integration to engineering disciplines.	
Pre-requisite learning		
Module Recommendations		
This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named CIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).		
8752	MATH6014	Technological Mathematics 1
Incompatible Modules		
These are modules which have learning outcomes that are too similar to the learning outcomes of this module. You may not earn additional credit for the same learning and therefore you may not enrol in this module if you have successfully completed any modules in the incompatible list.		
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. You may not enrol on this module if you have not acquired the learning specified in this section.		
No requirements listed		
Co-requisites		
No Co Requisites listed		

**Module Content & Assessment**

**Indicative Content**

**Complex Numbers**

Complex operations, polar form, negative and fractional powers, applications.

**Differentiation**

Limits, Definition and graphical interpretation of a derivative,. Derivatives of sums, products and quotients. The chain rule. Applications of differentiation.

**Integration**

Integration as antidifferentiation. Standard Integrals. Summation and definite integration. Applications.

**Assessment Breakdown**

**%**

Course Work

100.00%

**Course Work**

<i>Assessment Type</i>	<i>Assessment Description</i>	<i>Outcome addressed</i>	<i>% of total</i>	<i>Assessment Date</i>
Short Answer Questions	In class written	1	33.0	Week 4
Short Answer Questions	In Class Written	2,3	33.0	Week 8
Short Answer Questions	in Class Written	4,5	34.0	Sem End

No End of Module Formal Examination

**Reassessment Requirement**

**Repeat examination**

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.

The institute reserves the right to alter the nature and timings of assessment

**Module Workload**

<b>Workload: Full Time</b>				
<i>Workload Type</i>	<i>Workload Description</i>	<i>Hours</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Formal Lecture	3.0	Every Week	3.00
Tutorial	Tutorial	1.0	Every Week	1.00
Independent & Directed Learning (Non-contact)	Study and Skill Practice	3.0	Every Week	3.00
Total Hours				7.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				4.00

<b>Workload: Part Time</b>				
<i>Workload Type</i>	<i>Workload Description</i>	<i>Hours</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Formal Lecture	2.0	Every Week	2.00
Tutorial	Tutorial	1.0	Every Second Week	0.50
Independent & Directed Learning (Non-contact)	Set Worksheets with feedback	1.0	Every Week	1.00
Independent & Directed Learning (Non-contact)	Reading and skill practice	1.0	Every Second Week	0.50
Independent & Directed Learning (Non-contact)	Reading and skill practice	3.0	Every Week	3.00
Total Hours				8.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				2.50

Module Resources
<i>Recommended Book Resources</i>
<ul style="list-style-type: none"> <li>• John Bird BSc (Hons) CEng CMath CSci FIET MIEE FIE FIMA FColIT., <i>Basic Engineering Mathematics, Fifth Edition</i>, 5th Ed., Newnes [ISBN: 9781-85617-697-2]</li> </ul>
<i>Supplementary Book Resources</i>
<ul style="list-style-type: none"> <li>• K.A. Stroud 2007, <i>Engineering Mathematics</i>, 6th Edition Ed., Macmillan [ISBN: 978-1403942463]</li> <li>• John Bird 2005, <i>Basic engineering mathematics</i>, 4th Edition Ed., Newnes Oxford [ISBN: 978-0750665759/0]</li> </ul>
<i>This module does not have any article/paper resources</i>
<i>Other Resources</i>
<ul style="list-style-type: none"> <li>• Website: <i>CIT Maths Online</i> <a href="http://alc.cit.ie/resources/mathsonline">http://alc.cit.ie/resources/mathsonline</a></li> <li>• Website: <i>Blackboard</i> <a href="http://citbb.blackboard.com">http://citbb.blackboard.com</a></li> <li>• Website: <i>Academic Learning Centre</i> <a href="http://alc.cit.ie">http://alc.cit.ie</a></li> </ul>

**Module Delivered in**

Programme Code	Programme	Semester	Delivery
CR_EEPSY_8	<a href="#"><u>Bachelor of Engineering (Honours) in Electrical Engineering</u></a>	2	Mandatory
CR_EELES_8	<a href="#"><u>Bachelor of Engineering (Honours) in Electronic Engineering</u></a>	2	Mandatory
CR_EELEC_7	<a href="#"><u>Bachelor of Engineering in Electrical Engineering</u></a>	2	Mandatory
CR_EELXE_7	<a href="#"><u>Bachelor of Engineering in Electronic Engineering</u></a>	2	Mandatory
CR_EELEC_6	<a href="#"><u>Higher Certificate in Engineering in Electrical Engineering</u></a>	2	Mandatory
CR_EELXE_6	<a href="#"><u>Higher Certificate in Engineering in Electronic Engineering</u></a>	2	Mandatory