



Institiúid Teicneolaíochta Chorcaí  
Cork Institute of Technology

## MATH6014: Technological Mathematics 1

### Module Details

<b>Short Title:</b>	Technological Mathematics 1	APPROVED
<b>Full Title:</b>	Technological Mathematics 1	
<b>Module Id:</b>	370	
<b>Official Code:</b>	MATH6014	<b>NFQ Level:</b> 6
		<b>ECTS Credits:</b> 5

<b>Coordinator:</b>	KEVIN J KELLY
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<b>Description:</b>	This module is designed to consolidate and develop student competence in using mathematical techniques for scientific and engineering programs.
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### Learning Outcomes:

*On successful completion of this module the learner will be able to...*

1. State the laws of indices and logs and use these laws to solve equations.
2. Formulate and solve various equations.
3. Reduce equations to linear form and interpret constants from graphs.
4. Use trigonometry to solve triangles and equations.

### 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).*

No recommendations listed

#### 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

#### Module 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



## Module Content &amp; Assessment

## Indicative Content

- **Basic Mathematics**

Indices, logarithms, scientific notation, units. Transposition and evaluation of formulae.

- **Algebra**

Formulation and solution of equations: linear, quadratic, cubic equations. Complex roots. Linear and non-linear simultaneous equations. Partial fractions. Polynomial functions.

- **Linear Graphs**

Reduction of non-linear relationships to linear form. Manipulation of data and plotting of graphs, evaluation and interpretation of constants.

- **Trigonometry**

Trigonometric ratios and identities, unit circle. Graphs of trigonometric functions (waveforms). Solution of trigonometric equations, sine and cosine rules. Polar form of complex number.

Assessment Breakdown	%
Course Work	30%
End of Semester Formal Examination	70%

	Outcome addressed	% of total	Assessment Date
<b>Formal End-of-Semester Examination</b>	1,2,3,4	70%	Semester End

Coursework Breakdown				
Type	Description	Outcome addressed	% of total	Assessment Date
Other	1-hour written assessment	1,2	15	Week 5
Other	1-hour written assessment	3,4	15	Week 10

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



## Module Workload &amp; Resources

Workload		Full-time mode		
Type	Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	Lectures	4	Every Week	4.00
Independent & Directed Learning (Non-contact)	Class notes and exercise sheets.	3	Every Week	3.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				4.00

Workload		Part-time mode		
Type	Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	Lectures	2	Every Week	2.00
Independent & Directed Learning (Non-contact)	Worksheets with feedback	1	Every Week	1.00
Tutorial	Tutorial	1	Every Second Week	0.50
Independent & Directed Learning (Non-contact)	Reading and Skills Practice	4	Every Second Week	2.00
Independent & Directed Learning (Non-contact)	Reading and Skills Practice	3	Every Second Week	1.50
Total Weekly Learner Workload				7.00

## Resources

## Recommended Book Resources

- **M. Crockett & G. Dogett 2003, *Mathematics for Chemists*, Vol.1 Ed., Royal Society of Chemistry [ISBN: 0-85404-677-1]**
- **P. Tebbutt 1998, *Basic Mathematics*, John Wiley & Sons [ISBN: 0-471-97284-3]**
- **J.O.Bird 2005, *Basic Engineering Mathematics*, 4th Edition Ed., Newnes [ISBN: 978-0750665759/0]**

## Supplementary Book Resources

- **K.A. Stroud 2007, *Engineering Mathematics*, 6th Edition Ed., Macmillan [ISBN: 978-1403942463]**

## Other Resources

- **Website: <http://mathsonline.cit.ie/>**