

<b>Full Title:</b>	Mathematics 1
<b>Language of Instruction:</b>	English
<b>Module Code:</b>	MATH E7001
<b>Credits:</b>	5
<b>Valid From:</b>	Semester 1 - 2014/15 ( September 2014 )
<b>Module Delivered in</b>	<a href="#">1 programme(s)</a>
<b>Module Description:</b>	The aim of the course is to familiarise the student with the basic concepts, techniques and operations of mathematics of particular relevance to an engineering programme.
<b>Learning Outcomes:</b>	
<i>On successful completion of this module the learner should be able to</i>	
<ol style="list-style-type: none"> <li>1. Use numerical, algebraic and graphing skills in an engineering environment.</li> <li>2. Solve a broad range of algebraic and trigonometric equations.</li> <li>3. Deal competently with experimental data and the mathematics encountered in other engineering areas of the programme.</li> <li>4. Use mathematically related software for example MATHLAB, EXCEL Spreadsheets.</li> </ol>	

**Module Content & Assessment**

<b>Indicative Content</b>
<b>Numbers</b> Number types, operations of arithmetic. Scientific notation, calculation and use of calculator, errors. Number bases.
<b>Algebra</b> Solution of linear, quadratic and simultaneous equations. Indices, logarithms to base 10 and to base e. Transposition of formulae.
<b>Functions and Graphs</b> Linear, piecewise linear, polynomial, exponential, logarithmic functions. Solutions of indicial equations. Graphing functions, using graphs to find roots and estimate roots.
<b>Trigonometry and Complex Numbers</b> Angular measurement. Theorem of Pythagoras. Sine, cosine and tangent of an angle, solution of triangles, sine and cosine rules. Sine and cosine waves, angular velocity, wavelength, amplitude, addition of waves and phasor diagrams. Complex numbers, Argand diagram, Cartesian form, Polar form, Arithmetic of Complex Numbers.

<b>Assessment Breakdown</b>	<b>%</b>
Course Work	40.00%
End of Module Formal Examination	60.00%

**Full Time**

<b>Course Work</b>							
<i>Assessment Type</i>	<i>Assessment Description</i>	<i>Outcome addressed</i>	<i>% of total</i>	<i>Marks Out Of</i>	<i>Pass Marks</i>	<i>Assessment Date</i>	<i>Duration</i>
Class Test	1. Attendance and participation at tutorials; 2. Completion of a set of tutorial sheets or homeworks based on the course. 3. Two one-hour mid-semester examinations.	1,2,3,4	40.00	0	0	n/a	0

No Project

No Practical

<b>End of Module Formal Examination</b>							
<i>Assessment Type</i>	<i>Assessment Description</i>	<i>Outcome addressed</i>	<i>% of total</i>	<i>Marks Out Of</i>	<i>Pass Marks</i>	<i>Assessment Date</i>	<i>Duration</i>
Formal Exam	End-of-Semester Final Examination	1,2,3	60.00	0	0	End-of-Semester	120

<b>Reassessment Requirement</b>							
<b>A repeat examination</b> 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.							

**DKIT reserves the right to alter the nature and timings of assessment**

**Module Workload & Resources**

**Workload: Full Time**

Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	No Description	2.00	Every Week	2.00
Tutorial	No Description	1.00	Every Week	1.00
Total Weekly Learner Workload				3.00
Total Weekly Contact Hours				3.00

**This course has no Part Time workload.**

**Resources**

*Recommended Book Resources*

John Bird 2012, *Engineering Mathematics*, 6th Ed., Routledge

Croft, A. & Davidson, R. 2010, *Foundation Mathematics*, 5th Ed., Pearson (Prentice Hall)

Davis, H.G. & Hicks, G.A. 1998, *Mathematics for Scientific and Technical Students*, Longman

*This module does not have any article/paper resources*

*Other Resources*

**Link: Library Catalogue**

<https://dkitlibs.dkit.ie/>

**Website: Mathworld**

<http://mathworld.wolfram.com/>

**Website: Khanacademy**

<http://www.khanacademy.org/>

**Module Delivered in**

Programme Code	Programme	Semester	Delivery
DK_EELES_7	<a href="#">Bachelor of Engineering in Electrical and Electronic Systems</a>	1	Mandatory