

Module Title:	Mathematics 1 – Semester 1
Academic year:	2008 – 2009
Credit Value:	5 – Mandatory
Pre- requisites:	Leaving Certificate Mathematics at appropriate level.
Assessment:	70% Final Exam, 30% Continuous Assessment (CA)
Aims	<ol style="list-style-type: none"> 1. To allow a thorough revision and consolidation of key basic mathematical topics that have been encountered by students prior to entry to higher education. 2. To deepen the student's understanding of key mathematical ideas regarding engineering functions, iteration and calculus in such a way as to support other engineering modules.
Module Content	<ul style="list-style-type: none"> • Review Material • Functions • Rate of change and differentiation • Differentiation • Algebra • Complex Numbers • Trigonometry • Vectors
Intended Learning Outcomes:	<p>On successful completion of this module the student will be expected to be able to:</p> <ol style="list-style-type: none"> 1. Manipulate and solve algebraic expressions and equations. 2. Apply the basic techniques of trigonometry to solve problems in engineering. 3. Find the equation of a straight line through data. 4. Find the centre and radius of a circle. 5. Convert co-ordinates from Cartesian to polar form. 6. Perform algebra involving complex numbers. 7. Graph functions, identify 1-1 functions, apply the algebra of functions, recognise and do calculations with periodic functions, log and exponential functions. <p style="text-align: right;">Contd.</p>

	<ol style="list-style-type: none">8. Apply the standard techniques of differential calculus.9. Apply the differential calculus to simple 1-variable problems in engineering.10. Manipulate vectors and apply them to simple problems in engineering.
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