

Department of Electronics Module Specification

Module title
MathsII ELE00004F
Credit value
40
Module credit level
Level 3
Module coordinator and department involved in delivery of the module
Dr Janet Clegg Other Electronics Teaching Staff – Dr Alice Courvoisier, Dr Hirohata, Dr Gajaweera
Indicative JACS subject code for the module
H600 (Electronic Engineering)
Teaching cycle
Stage 0, Spring and Summer Terms. Taught annually.
Pre-requisite modules/co-requisite modules/prohibited combinations
Maths I
Shared teaching
BSc Music Technology Stage 1 module: <i>Mathematics for Music Technology</i>
Breakdown of the module workload
Activity: Total hours Lectures: 54 Practicals: 108 Workshops: 36 Assessment: 24.5 Private Study: 177.5
Module aim
The module aims to develop students' knowledge and facility in mathematics for engineering.

Module learning outcomes	
On completion of this module students are expected to have knowledge of mathematics to a level appropriate for first year electronics degree programmes.	
Further information about the module content	
Spring Term	
Logs and Exponentials	
Introduction to Calculus – basic polynomial differentiation.	
Surds – manipulation, simplification, and rationalisation of denominators.	
Matrices – addition, subtraction, multiplication, 2×2 inverses and determinants, solution of matrix equations, solution of simultaneous equations, and application to geometry.	
Series – sigma notation, arithmetic and geometric progressions, and the binomial series.	
Geometry – tangent to a curve.	
Differentiation – products, quotients, functions of functions, exponentials, logarithmic functions, turning points, trigonometric functions.	
Complex Numbers – Cartesian form and Argand diagrams, addition, multiplication, division, modulus, and solution of quadratic equations.	
Vectors – addition and subtraction, scalar (dot) product and angles between vectors; position, displacement, velocity and acceleration vectors, and work.	
Summer Term	
Trigonometric Identities – basic identities, double and half angle formulae, addition and multiplication formulae; angles outside 0° to 90° .	
Integration – introduction, trigonometric functions, constants of integration, substitution, partial fractions, by parts, indefinite/definite integrals.	
Series – sigma notation for sums of $1/n^p$, Maclaurin expansions for e^x .	
Complex Numbers – modulus-argument form, exponential form, Euler's identity, and solution of $z^n = 1$.	
Probability and Statistics – mean, mode, median, percentiles, standard deviation; combined probabilities and independent events.	
Differential Equations – simple first order	
Assessment	
Continuous Assessment	Please refer to the Statement of Assessment and the Assessment and Feedback Summary
Examination	Please refer to the Statement of Assessment
Reassessment.	Please refer to the Statement of Assessment
Feedback to students	
Students will receive written feedback on their coursework within 3 weeks of submission.	

Reading List	
Key to recommended books:	
**	Strongly recommended for purchase (available from the University bookshop)
*	Recommended purchase
++	Essential library reading
+	Supportive library reading
++ Stroud, KA, 'Engineering Mathematics: Programmes and Problems', Macmillan, 2001, 5th Edition. ISBN 9780333919392	
++ Bostock, L and Chandler, S, 'Core Mathematics for A-Level', Stanley Thornes, 1994. ISBN 0-74871-779-X.	
+ Bostock, L, Chandler, S, Shepherd and Smith, 'GCSE Higher Mathematics: A Full Course', Macmillan, 1996. ISBN 0-74872-647-0.	
Date on which the module template was last updated	19 th July 2010
Date approved by BoS(s)	3 rd March 2010