FOR **STAFF**

RESEARCH PAPERS
– academic journal publications

KEY REPORTS
e.g. – Making Mathematics Count
– Measuring the Mathematics Problem

CASE STUDIES
– teaching, learning and supporting mathematics

sigma GUIDES
e.g. – setting up mathematics and statistics support provision
– gathering student feedback
– mathematics learning support in UK higher education: the extent of provision

HE STEM CURRICULUM INNOVATION PROJECT REPORTS
e.g. – Developing graduate skills
– Engaging with Employers
– Problem-solving, Industrial problems

www.**math**centre.ac.uk

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mathcentre was developed by Loughborough University, Coventry University and Leeds University in association with the Higher Education Academy MSOR Subject Centre in 2003, and funded by the HEFCE. The site was upgraded in 2010 with funding from JISC. Resources are made available for use under a Creative Commons licence.

sigma Σ

The **sigma** Network promotes cross-university mathematics and statistics support through regional hubs, developmental activities and mentoring.

www.sigma-network.ac.uk

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mathcentre offers students and staff free online mathematics resources to support the transition from school to university in a range of disciplines

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FOR **STUDENTS**

TEXT BASED (PDFS)
accessible two page leaflets, practice and revision booklets, Teach Yourself booklets with worked practice exercises

VIDEO TUTORIALS
also for iPod and 3G phones

FACTS & FORMULAE LEAFLETS

OVER 1000 SEPARATE RESOURCES AVAILABLE NOW!

Arithmetic
- Rules of Arithmetic
- Decimals, Fractions, Percentages, Ratio, Roots

Algebra
- Mathematical language
- Algebraic manipulation
- Formulae, equations and inequalities

Functions and Graphs
- Exponential, logarithmic, hyperbolic, polynomial and trigonometric functions
- Inverse functions

Trigonometry
- Pythagoras' theorem
- Radians
- Trigonometric equations, formulae, ratios, identities and functions

Geometry
- Properties of straight line segments
- Conic sections (ellipse, hyperbola, parabola)
- Polar co-ordinates

Sequences & Series
- Arithmetic & geometric sequences and series
- Sigma notation

Vectors
- Cartesian components of vectors
- Scalar and vector products

Differentiation
- from first principles
- by taking logs, parametric, implicit
- Chain, product and quotient rules
- Maxima & minima

Integration
- as the reverse of differentiation, as a summation
- by parts, by substitution, using partial fractions, using trig identities

Matrices
- Matrix arithmetic
- Inverses and determinants
- Eigenvalues, eigenvectors

Complex Numbers
- Complex arithmetic
- Argand diagram and polar form
- De Moivre's theorem
- Roots of polynomials and the exponential form

Differential Equations
- First and second order differential equations

Proofs
- Direct proof
- Proof by induction

Mechanics
- Forces, impact, momentum, Newton's laws of motion

Resources continually being added .....

For statistics resources see
www.statstutor.ac.uk

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COMMUNITIES PROJECT

The **math**centre **Communities Project** enables academics to contribute mathematics resources they have developed to enable the volume and scope of material available to support students to increase significantly.

HIGHLIGHTED RESOURCES

- **mathtutor** (www.mathtutor.ac.uk) – some mathcentre resources structured as a course
- **maths e.g.** (from Brunel University) – thousands of examples to practise with solutions and feedback
- **numbas** (from Newcastle University) – tests and exams to practise