

DEPARTMENT:

MATHEMATICS

LEVEL:

NEW ADVANCED HIGHER MATHEMATICS OF MECHANICS

RECOMMENDED ENTRY LEVELS:

A pass in Higher Mathematics at A or B

COURSE CONTENT:

Mathematics of Mechanics: Force, Energy and Periodic motion

Momentum, conservation of energy, circular motion, simple harmonic motion, centres of mass.

Mathematics of Mechanics: Linear and Parabolic motion

Projectiles, equations of motion, graphs, vectors, relative motion, parabolic motion and Newton's laws: equilibrium in 2D, friction, inclined planes.

Mathematics of Mechanics: Mathematical techniques for Mechanics

Partial fractions, differentiation: exponential and logarithmic functions, chain rule, product rule, quotient rule, implicit, parametric. Integration: by parts, standard integrals, substitution. Solving differential equations

Advanced Higher Mathematics covers the vast majority of what would be covered in the first Year of university study and some second year topics. This would provide a fantastic grounding for those wishing to study Engineering/Mathematical Sciences.

METHODOLOGY:

Teacher led classroom management with direct teaching the prime approach.

ASSESSMENT:

End of Unit assessments (internal) which will test minimum competence.

End of Course examination (external) which will be graded A, B, C, D or fail.

To be awarded a grade, a pupil must also have successfully completed all three end of unit assessments or the first two units plus a pass at all units of Advanced Higher Mathematics.