

# 1402 (Mathematical Methods 2)

<i>Year:</i>	2014–2015
<i>Code:</i>	MATH1402
<i>Level:</i>	First
<i>Value:</i>	Half unit (= 7.5 ECTS credits)
<i>Term:</i>	2
<i>Structure:</i>	3 hour lectures and 1 hour problem class per week. Weekly assessed coursework.
<i>Assessment:</i>	The final weighted mark for the module is given by: 90% examination, 10% coursework. In order to pass the module you must have at least 40% in both the examination and the final weighted mark.
<i>Normal Pre-requisites:</i>	MATH1401
<i>Lecturer:</i>	Prof E Burman
<i>Problem class teacher:</i>	Prof NR McDonald

## *Course Description and Objectives*

This course introduces all the techniques necessary for an understanding of the theorems of Green and Stokes. These theorems are important in the theory of electrostatic potential and Laplace's Equation.

## *Recommended Texts*

The recommended book is: *Advanced Calculus* (Schaum Outline Series).

## *Detailed Syllabus*

- Partial differentiation. Chain rule. Taylor series.
- Maxima and minima of functions of more than one independent variable.
- Line integrals. Potential energy. Gradient.
- Integration over plane areas. Volumes. Change of variables. Jacobians.
- Integration over volumes. Flux, Gauss' theorem, Green's theorem, Stokes' theorem, divergence, curl, standard identities and manipulations, summation convention.