School of Mathematics

MA22S3 — Fourier analysis for science 2011-12
(SF Science)

Lecturer: Prof. D. McManus

Requirements/prerequisites: prerequisite: MA11S2, co-requisite MA22S1

Duration: Michaelmas term, 12 weeks

Number of lectures per week: 3 lectures and 1 tutorial per week

Assessment:

ECTS credits: 5

End-of-year Examination: 2 hour examination in Trinity term.

Description:

Learning Outcomes: On successful completion of this module, students will be able to:

- calculate the real and complex Fourier series of a given periodic function;
- obtain the Fourier transform of non-periodic functions;
- evaluate integrals containing the Dirac Delta;
- solve ordinary differential equations with constant coefficients of first or second order, both homogenous and inhomogenous;
- obtain series solutions (including Frobenius method) to ordinary differential equations of first or second order;
- apply their knowledge to the sciences where relevant.

November 11, 2011