School of Computer Science and Statistics

B.A. (Mod) Computer Science

ECTS Module Descriptor 2011-12

Module Code	MA2C02
Module Title	Discrete Mathematics II
Pre-requisites	CS1001 & CS1002 & MA2C01
ECTS	5
Chief Examiner	Dr David Wilkins
Teaching Staff	Dr David Wilkins
Delivery	The module runs throughout Hilary Term of the Senior Freshman academic year. In each week, there are three lectures: one lecture per week usually takes the form of a tutorial on problems relevant to the course.
Aims	This module provides students with an introduction to topics in Discrete Mathematics, and to more advanced calculus topics relevant to electronics, acoustics and image processing. Students are exposed to diverse course material presented in the formal style and language that is commonplace in contemporary mathematics, with the aim that they should develop the skills required to engage effectively with such material.
Learning Outcomes	When students have successfully completed this module they should be able to: • perform simple calculations and apply algorithms involving quaternions and integer arithmetic; • solve simple second order differential equations with constant coefficients; • calculate Fourier series of periodic functions; • engage effectively in private study of texts written in the formal definition-lemma-theorem-proof style employed in contemporary

	mathematics; • recognize and employ basic mathematical proof techniques.
Syllabus	Specific topics addressed in this module include: • Quaternions • Elementary Number Theory • Ordinary Differential Equations • Fourier Series
Assessment	Assessment is by examination (90%) and continuous assessment (10%). Continuous assessment consists of a small number of assignments covering problems relevant to the course.
Bibliography	None required. Printed lecture notes are distributed that cover the course material. There are many textbooks available that develop the mathematics relevant to the course.
Website	http://www.maths.tcd.ie/~dwilkins/Courses/MA2C02/