Coding theory M836

Presentation pattern *October to June*

This module is presented in even number years

Programme information

Most of the MSc modules are based on guided reading of an individual set textbook. Students need to successfully complete six modules worth 180 points to be awarded the degree.

Module description

This module covers the theory of error-detecting and error-correcting codes, investigating their constraints and bounds, and introducing a wide variety of linear and nonlinear codes together with associated encoding and decoding procedures. Students will analyse the structure and properties of the codes, investigate links between the theory of error-correcting codes and other mathematical structures, and examine the applicability of codes to real situations. They will also look at the concepts of optimal and perfect codes, and examine a wide variety of codes, including some constructed from other mathematical structures. The module is based on the set book *A First Module in Coding Theory* by R. Hill (Oxford University Press).

Person specification

The person specification for this module should be read in conjunction with the generic person specification for an associate lecturer at The Open University.

As well as meeting all the requirements set out in the generic person specification, you should:

- have a good honours degree in mathematics or another subject directly relevant to the module contents, together with evidence of successful postgraduate study in mathematics, such as a higher degree in mathematics
- have experience working in an area directly relevant to the module
- be able to provide evidence of a complete understanding of a large proportion of the material covered in the module (by, for example, successfully completing a pre-interview marking exercise) and demonstrate the ability and willingness to quickly develop an understanding of the remainder of the material
- be able to present mathematics electronically and annotate pdfs
- be willing to use elearning facilities (training will be given), such as:
  o the module website, and other University websites
  o the University systems for the purposes of monitoring students' progress
  o email and University forums
  o OULive, the university's online tutorial software (training provided)
  o on-screen marking of electronically submitted (in pdf format) student assignments

It would be an advantage to have:

a PhD in a relevant area

teaching experience in the relevant specialist subject area at post graduate or third year level

you will be required to mark assignments electronically. This will be in pdf format

Module related details - a full explanation can be found on the website

Credits awarded to the student for the successful completion of a module:	30
Number of assignments submitted by the student:	4
Method of submission for assignments:	1b
Level of ICT requirements:	2
Number of students likely to be in a standard group:	15
Salary band:	2
Estimated number of hours per teaching week:	2.5