School of Mathematics

Course 2E1 — Engineering Mathematics III   2006-07
(SF Engineering & MSISS& MEMS)

Lecturer: Dr. R. M. Timoney & Dr. D. Zaitsev

Requirements/prerequisites: 1E1, 1E2

Duration: 24 weeks

Number of lectures per week: $2 + 1$ tutorial

Assessment: Tutorial sheets/assignments counting 15% and Exam 85%

End-of-year Examination: One 3 hour examination (Final Exam in May/June).

Description: See `http://www.maths.tcd.ie/~richardt/2E1` and `http://www.maths.tcd.ie/~zaitsev/2E1-2006-07/2E1.html` for more information.

Objectives. The objectives of this course are to give the participants a basic grounding in the mathematics that underlies virtually all of the applications of the mathematics to engineering and to promote an ability among the participants to apply this knowledge to new situations.

Syllabus.

Multivariate Calculus. This extends the calculus of one variable studied in 1E1 to several variables.
Textbook: *Thomas' Calculus*, 11th ed.: Chapters 13-15 [or 10th ed.: Chapters 10-12].

Linear Algebra. This continues the study of linear algebra begun in 1E2.
Textbook: *Elementary Linear Algebra* (with applications), Anton & Rorres, Chapters 4-7.

Fourier Series, Fourier Transform. This is new, heavily relying on the theories of linear algebra.
Textbook: *Advanced Engineering Mathematics*, Kreyszig, Chapter 10.

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