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MODULE DESCRIPTOR

Module Title

Mathematical Techniques

Reference	EN2900	Version	3
Created	May 2017	SCQF Level	SCQF 8
Approved	June 2002	SCQF Points	15
Amended	May 2017	ECTS Points	7.5

Aims of Module

To provide the student with the ability to apply advanced level mathematics to engineering problems.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

1	Apply partial differentiation techniques to problems in engineering.
2	Apply Laplace transform methods to problems involving simple linear systems.
3	Apply Fourier series techniques to periodic signals.
4	Use a computer mathematics package in support of the other learning outcomes

Indicative Module Content

The syllabus will include: Application of a computer mathematics package to problems in engineering mathematics. Partial differentiation: Application to simple engineering problems. Laplace Transforms: Definition of Laplace transform and its inverse. Use of tables to calculate Laplace transforms of elementary function. The solution of ordinary differential equations. The step function and impulse function. Fourier series: Decomposition of waveforms. Fourier series of simple functions.

Module Delivery

The module is delivered using a series of lectures with associated tutorials and computer laboratories where techniques can be applied.

Indicative Student Workload

Indicative Student Workload	Full Time	Part Time
Contact Hours	N/A	36
Non-Contact Hours	N/A	114
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	N/A	150
Actual Placement hours for professional, statutory or regulatory body		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Practical Exam	Weighting:	30%	Outcomes Assessed:	4
Description:	Computer algebra based laboratory test.				

Component 2

Type:	Examination	Weighting:	70%	Outcomes Assessed:	1, 2, 3
Description:	Closed book examination.				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

To pass the module, you must achieve a 40% weighted average mark from the examination and practical examination. In addition, you need to achieve at least 35% in both the individual examination and practical examination components

Module Grade	Minimum Requirements to achieve Module Grade:
A	70-100%
B	60-69%
C	50-59%
D	40-49%
E	35-39%
F	0-34%
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	Mathematics 1B (EN1912) or equivalent.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

1	STROUD, K.A. AND BOOTH, D.J., 2020. Engineering Mathematics. 8th Ed.
2	STROUD, K.A. AND BOOTH, D.J., 2020. Advanced Engineering Mathematics. 6th Ed.
3	KREYSZIG, A., 2011. Advanced Engineering Mathematics, 10th Ed. Wiley