



Module Code: EJ215022S	Version: 1 Date amended: 9 th December 2005
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1. Module Title: *maximum 100 characters*

Mathematics for Technology 2

2a. Module Leader:	2b. Department:	2c. Faculty:
S.Cirstea	Computing and Technology	Science and Technology

3a. Level: <i>see guidance notes</i>	3b. Module Type: <i>see guidance notes</i>
2	Standard

4a. Credits: <i>see guidance notes</i>	4b. Study Hours: <i>see guidance notes</i>
15	150

5. Restrictions

Pre-requisites:	Mathematics for Technology 1
Co-requisites:	
Exclusions:	
Pathways to which this module is restricted:	

LEARNING, TEACHING AND ASSESSMENT INFORMATION (for inclusion in the Module Guide)

6a. Module Description: *200 – 300 words*

Building on the mathematical methods acquired in Mathematics for Technology 1, this module provides essential mathematical knowledge and techniques for the study of engineering and technology-based disciplines. Dimensional analysis provides a tool for checking the validity of equations, whilst linear regression enables the finding of a linear 'best-fit' to data. Numerical techniques for solving equations are explored. Common probability distributions are introduced. Methods for the solution of first and second order differential equations are established and students are introduced to Laplace transforms. The concept of Fourier series representation of simple periodic waveforms is introduced. In learning these new techniques, students are encouraged to use a mathematical software package to provide a check on their solutions and to further their understanding.

The module will be assessed by exam and coursework.

6b. Outline Content:

- Dimensional analysis.
- Linear regression.
- Numerical solution of equations – for example, Newton-Raphson method.
- Solution of simple first and second order differential equations.
- The binomial, Poisson and normal probability distributions.
- Laplace transforms.
- Introduction to Fourier series.
- Mathematical software tools: explores the mathematical capabilities of a software package, for example Mathcad.

6c. Key Texts/Literature:

Singh, K (2003) Engineering Mathematics through Applications, Basingstoke: Palgrave MacMillan.
Stroud, K.A. and Booth D.J. (2001) Engineering Mathematics, Basingstoke: Palgrave Macmillan.

6d. Specialist Learning Resources:

Module guide

7. Learning Outcomes (threshold standards):	
	On successful completion of this module the student will be expected to be able to:
Knowledge and understanding	1. Apply mathematical techniques to establish and validate equations. 2. Select methods to solve equations using appropriate analytical and numerical techniques and obtain solutions for simple differential equations.
Intellectual, practical, affective and transferable skills	3. Solve engineering and technologically based problems that may involve the use of real data in generating equations; the validation of equations used; the solution of differential equations and the transient analysis of simple networks.

8. Learning Activities			
Learning Activities	Hours	Learning Outcomes	Additional Comments (including details of use of web-CT)
Teacher managed learning:	36	All	
Student managed learning:	114	All	
TOTAL	150		

9. Assessment		
Assessment Method	% contribution to module mark or P/F	Learning Outcomes
Assignment	30	3
Examination (2 hours)	70	All
<p>In order to pass this module, students are required to achieve an overall mark of 40%</p> <p>In addition, students are required to (a) for each element of fine graded assessment listed above, achieve a minimum mark of 30% (or higher - see Module Guide) and (b) pass any pass/fail elements</p>		

OTHER TECHNICAL DETAILS

10. Delivery of the Module <i>Please delete as appropriate</i>			
Delivery	This module is delivered over...	Yes or No?	Indicate which by deleting as appropriate
1	...a single semester	Y	Semester 1 Semester 2

11. Learning Activities – further details	
Learning Activities	Details of duration and frequency of learning activities
Teacher managed learning:	Two 1-hour lectures and one 1-hour tutorial/workshop per week
Student managed learning:	114 hours

12. Module Assessment – further details				
Method	Length/duration	Fine graded (FG) or pass/fail (PF)	Minimum Qualifying Mark <i>see guidance notes</i>	Comments
Assignment	1,000 words	FG	30 %	
Examination	2 hours	FG	30 %	

13. Subject: <i>see guidance notes</i>	
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