1.	**Module Code**	NFE2105		
2.	**Module Title**	Mathematics		
3.	**Schools involved in delivery**	School of Computing and Engineering		
4.	**Name of Course(s)**	BEng(Hons) Computer Systems Engineering (FT & SW) MEng/BEng(Hons) Electronic Engineering (FT & SW) MEng/BEng(Hons) Electronic and Communications Engineering (FT & SW) BEng(Hons) Electronic Engineering and Computer Systems (FT & SW) BEng(Hons) Electronic and Electrical Engineering (FT & SW) MEng/BEng(Hons) Chemical Engineering MEng/BEng(Hons) Chemical Engineering with Chemistry BSc(Hons) Chemical Engineering and Chemistry		
5.	**Module Leader**	Ciprian Coman		
6.	**Location**	Queensgate; Fujian Normal University, China		
7.	**Module Type**	Core	Core on all courses	
		Optional		
8.	**Credit Rating**	20		
9.	**Level**	F (FHEQ 4)		
10.	**Learning Methods**	Lectures	17	hours
		Tutorials	17	hours
		Practical Classes and Demonstrations	0	hours
		Guided Independent Study	166	hours
		Total hours	200	hours
11.	**Pre-requisites**	None		
12.	**Recommended Prior Study**	None		
13.	**Co-requisites**	None		
14.	**Shared Teaching**	None		
15.	**Professional Body Requirements**	None		
16.	**Graded or Non Graded**	Graded		
17.	**Barred Combinations**	None		

18.	**Synopsis** In this key first year module you will gain fundamental knowledge and practical techniques in Engineering Mathematics to deal with analytical modules in the subsequent years of your course. Amongst the subjects you will study will be: functions, linear mathematics, calculus and numerical techniques to solve real world engineering problems.
19.	**Learning Strategy** In this module the learners will engage in a blend of delivery methods facilitating both individual and collaborative aspects of learning to achieve the specified learning outcomes. In particular, this will require the learner to engage with the VLE materials where the learning is supported by the tutor-led two-way asynchronous discussion board. To focus the guided learning process, the tutor will set weekly quizzes/assignments (SAIL). These two elements will culminate in face-to-face sessions which will reinforce the learning by clarifying the content through student-led questions/answers interaction. These sessions are followed up by tutorials to illustrate the module content and enable practice in more depth. Concepts and techniques will be introduced in lectures, including adequate demonstration of solving examples. Tutorial examples will be provided on which students are expected to make full use of unsupervised time. Difficulties will be dealt with in tutorial classes. The module is supported by the use of BrightSpace VLE including course documentation, pre-recorded lectures, external links, communication/discussion and self-assessment facilities. Students with disability will be accommodated by close adherence to the University of Huddersfield guidelines which inter alia include: (i) pre-recorded materials with captions of suitable size, (ii) Power Point slides following the appropriate font size and colour contrast, (iii) early availability of all materials on VLE – typically at least two weeks in advance.
20.	**Outline Syllabus** Numbers, arithmetic and algebraic procedures, complex numbers. Functions, trigonometric, exponential, logarithmic, hyperbolic, inverses, curve sketching. Matrices, determinants, Cramer's rule. Differentiation and integration of simple functions and rules of differentiation for products, quotients and function of a function. Sequences, series, progressions, recurrence relations. Scalars, vectors, products. Simple differential equations and form of solutions.

Introduction to the Laplace transform

Numerical techniques for solving equations, the bisection method and Newton-Raphson method.

Numerical methods for evaluating integrals.

Introduction to probability and statistics.

21. Learning Outcomes

On successful completion of this module, students will be able to:

Knowledge and Understanding Outcomes

1. Understand and manipulate mathematical functions/concepts relevant to engineering

Ability Outcomes

2. Analyse simple analytical engineering models using mathematical functions/concepts.

3. Interpret solutions of mathematical models in physical terms

22. Assessment Strategy

22.1 *Formative assessment*

Formative assessment will be set by the module leader and detailed in writing in the module handbook and on the VLE. It will include formative assessment in the form of feedback from tutors as well as structured opportunities for self-assessment.

22.2 *Summative Assessment*

Assessment tasks (including assessment weightings)

1. **Type** Written Assignment	Assessment weighting (%): 24
Description Taught material will contribute an element every week to the SAIL programme (Score As I Learn) submitted via the VLE platform. 11 x 15 minutes weekly assignements. Each assignment will be worth 3%. Taking the best 8 out of 11 scores.	Learning outcomes: 1
Workload	10 hours
Marking	Tutor assessed
Tutor reassessment	Not available
Anonymous marking	Applies

2. **Type** In-Class Test	Assessment weighting (%): 38
Description First half of the syllabus, unseen, open-book, online	Learning outcomes:1,2,3
Workload	1 hour (additional time, 2 hrs, will be provided to prepare and complete the submission of your work).
Marking	Tutor assessed

Tutor reassessment	Not available
Anonymous marking	No

3. **Type** In-Class Test	Assessment weighting (%): 38
Description Second half of the syllabus, unseen, open-book, online	Learning outcomes:1,2,3
Workload	1 hour (additional time, 2hrs, will be provided to prepare and complete the submission of your work).
Marking	Tutor assessed
Tutor reassessment	Not available
Anonymous marking	No

Task 3 is the final assessment task.

Assessment Criteria
Task 1
The accuracy with which learning is demonstrated.
Task 2 and 3
The relevance of the selected technique to answer a given question.
The accuracy with which technique application and manipulation are carried out.

24. **University of Huddersfield Graduate attributes (HGAs)**

Please check any attributes that the module meets by identifying the relevant sub element/s for the attribute. Please refer to the HGAs Mapping guide for specific guidance on how to complete this.

Attribute	Met*	Sub 1	Sub 2	Sub 3	Sub 4	Sub 5	Sub 6	Sub 7	*other
1. Self-motivated	1	1	1						
2. Commercially aware									
3. Enterprising	1	1				1			
4. Resilient	1				1				
5. An effective collaborator									
6. A confident leader									
7. Globally and socially aware									
8. Plans growth and development									

*In order for an attribute to be ticked as being met, a minimum of one sub element and/or 'other' must be selected. If 'other' is selected a brief explanation will need to be included in the HGA mapping appendix to the PSD.

Indicative Reading

http://library3.hud.ac.uk/myreading/lists/NFE2105