

MODULE TITLE	Mathematics 2	CREDIT V	ALUE	15		
MODULE CODE	CSM2179	MODULE	CONVENER	Prof Hylke J G	ilass (Coordinator)	
DURATION: TERM	1		2		3	
DURATION: WEEKS	10		0		0	
Number of Students Taking	Module (anticipat	ed)	25			

# **DESCRIPTION - summary of the module content**

Mathematics is at the heart of all science and engineering subjects. Provided the student has passed the CSM1027 and CSM1033 modules in year one, or passed an equivalent recognised external mathematics course. This module takes students further towards the level required to use mathematics as a tool in their other chosen pathways. As well as providing a clear reinforcement of those areas of mathematics that will be required, the module identifies mathematical principles and techniques which can be directly applied in their subject specialism.

Prerequisite modules: CSM1027, CSM1033 or equivalent.

## AIMS - intentions of the module

The module aims to extend the work encountered in the first year maths courses CSM1027, CSM1033 or an equivalent Stage 1 (NQF Level 4) mathematics course. The module familiarises students with several level 2 mathematical topics encountered in applied mathematical problems on other modules, assisting them in developing a high level of expertise in problem solving in engineering-related areas.

#### INTENDED LEARNING OUTCOMES (ILOs) (see assessment section below for how ILOs will be assessed)

#### On successful completion of this module, you should be able to:

Module Specific Skills and Knowledge:

understand and apply Stage 2 (NQF Level 5) mathematical techniques in the areas of numerical methods, curve fitting, differential equations, partial differentiation, probability and transform mathematics.

#### Discipline Specific Skills and Knowledge:

formulate questions in mathematical terms and hence solve problems encountered in engineering-related areas.

take data from a range of sources and undertake simple modeling tasks with external guidance.

Personal and Key Transferable / Employment Skills and Knowledge:

manage learning using resources for the discipline; an ability to develop working relationships of a professional nature within the discipline;

identify key areas of problems and choose appropriate tools/methods for their resolution in a considered manner.

#### SYLLABUS PLAN - summary of the structure and academic content of the module

calculus review / Maclaurin and Taylor series expansions; interpolation; curve fitting / regression; first order differential equations; second order differential equations; partial differentiation and optimisation; probability distributions; reliability; Laplace transforms: solutions to differential equations; module review.

Guided independent study

### LEARNING AND TEACHING

# LEARNING ACTIVITIES AND TEACHING METHODS (given in hours of study time) Scheduled Learning & Teaching Activities 44.00 Guided Independent Study 106.00 Placement / Study Abroad DETAILS OF LEARNING ACTIVITIES AND TEACHING WETHODS Hours of study time Description Category Hours of study time Description Scheduled learning and teaching activities 44 Lectures, tutorials, and IT workshops

 44
 Lectures, tutoriais, and it workshops

 106
 Lecture and assessment preparation; private study

0.00

		ASSI	ESSMENT					
FORMATIVE ASSESSM	ENT - for fee	dback and development pu	rposes; does	not cour	t tow	ards module g	rade	
Form of Assessment	Size of	ize of Assessment (e.g. duration/length)			ILOs Assessed		Feedback Method	
Weekly tutorial sheets	2-3 hou	rs each			1,4,5		Model answers	
		114.3						
SUMMATIVE ASSESSM	ENI (% OT Cr	edit)						
Coursework	40	Written Exams		60	Practical Exams			0
DETAILS OF SUMMATI	VE ASSESSM	IENT						
Form of Assessment	% of Credit	Size of Assessment (e.g. duration/length)		ILOs Assessed		Feedback Method		
2 written assignments	20% each	2-4 hours each	2-4 hours each			Written (annotate	ated scripts) and oral feedback	
written exam (closed book)	60%	2 hours		1,2,5		Annotated scripts		
DETAILS OF RE-ASSES	SMENT (whe	ere required by referral or de	eferral)					
Original Form of Assessment		Form of Re-assessment ILOs Re-a		assessed		Time Scale for Re-reassessment		
2 x coursework 40%		Written coursework	All above			August Ref/Def period		

Original Form of Assessment	Form of Re-assessment	ILOs Re-assessed	Time Scale for Re-reassessment
Exam 60%	Written Exam (2 hours)	All above	August Ref/Def period

# **RE-ASSESSMENT NOTES**

If a student is referred or deferred, the failed / non-completed component(s) will be re-assessed at the same weighting as the original assessment.

# RESOURCES

INDICATIVE LEARNING RESOURCES - The following list is offered as an indication of the type & level of information that you are expected to consult. Further guidance will be provided by the Module Convener

**Basic Reading:** ELE – <u>http://vle.exeter.ac.uk</u> HELM & MathAid (UoP) - links available on ELE

Web based and electronic resources: MathCentre: www.mathcentre.ac.uk

# Reading list for this module:

Туре	Author	Title		Edition	Publisher	Year	ISBN	Search
Set Set	Set Stroud, K.A Engineering Math Set Rees, D.G Foundation of Sta		thematics itatistics	6th-7th	Macmillan Chapman and Hall	2013 1987	9781137031204 9780412285608	[Library] [Library]
CREDIT VALUE		Advanced Engli	15	ects value		7.5	000-1-403-90312-3	<u>[Library]</u>
PRE-REQUISITE MODULES CO-REQUISITE MODULES			CSM1027, CSM1033					
NQF LEVEL (FHEQ)			5	AV	AILABLE AS DISTANCE LE	ARNING	No	
ORIGIN DATE			Wednesday 11 January 2017	LAST REVISION DATE Thursday 16 September 2021				
KEY WORDS SEARCH Engin			Engineering; mathematics.					