STUDENT AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Information			
Module Title	Mathematics for Manufacturing		
Module Code	UFMFG8-15-2	Level	Level 5
For implementation from	2018-19		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Contributes towards			
Module type:	Standard		
Pre-requisites	Engineering Mathematics 2018-19		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Educational Aims: The module is designed to familiarise students with, extend their knowledge of, and provide a solid foundation of mathematical and statistical techniques required later in the course. In particular students will develop understanding of the principles and use of statistical process control techniques, process capability methods.

Outline Syllabus: The syllabus includes:

Capability Analysis
Pareto chart and Gauge Study
Numerical Methods for solving Partial Differential Equations (PDEs)

Teaching and Learning Methods: See Educational Aims and Learning Outcomes.

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Part 3: Assessment

In the first sit, the statistics elements of this module will be assessed at the end of the module through a written assignment based on an engineering problem in industry and a PC lab based examination based on appropriate statistical software. These assessments will take into account both the professional application and practice demonstrated in the management of the project. The mathematics elements of the module will be assessed using an in-class test and will be based on questions that students have seen previously in formative tests.

The resit will comprise a single assignment based on a problem from industry; students will be required to use statistical software to: select appropriate statistical methods, generate and analyse data, identify and propose process improvements and reflect on their approach. Learning outcomes from both elements of component B are incorporated in this single assessment.

First Sit Components	Final Assessment	Element weighting	Description
Written Assignment - Component B		56 %	Written assignment (3000 words)
In-class test - Component A		25 %	Electronic in-class test (1 hour)
Examination - Component B	✓	19 %	PC lab based exam (2 hours)
Resit Components	Final Assessment	Element weighting	Description
Written Assignment - Component B	✓	75 %	Written assignment (4000 words)
Examination - Component A		25 %	Electronic examination (1 hour)

Part 4: Teaching and Learning Methods	
Learning Outcomes	On successful completion of this module students will be able to:

	Module Learning Outcomes
MO1	Use software to carryout statistical analysis and provide in context interpretation
MO2	Define the fundamental concepts of statistical process control, and process capability in detail
MO3	Define the fundamental concepts of Design of Experiments, and analysis of variance using statistical software
MO4	Evaluate and apply the use of basic statistical analysis and their work-place application
MO5	Formulate finite-difference schemes for certain ordinary or partial differential equations and use an appropriate numerical method to solve associated systems of linear equations
MO6	Provide valid interpretations of mathematical concepts and solutions in a given mathematical or physical context

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Contact Hours	Contact Hours	
	Independent Study Hours:	3
	Independent study/self-guided study	114
	Total Independent Study Hours:	114
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	36
	Total Scheduled Learning and Teaching Hours:	36
	Hours to be allocated	150
	Allocated Hours	150
Reading List	*The reading list for this module can be accessed via the following link:* https://uwe.rl.talis.com/index.html	