Engineering Mathematics

Module Information

2022.01, Approved

Summary Information

Module Code	4501NCCG
Formal Module Title	Engineering Mathematics
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
Nelson and Colne College Group

Learning Methods

Learning Method Type	Hours
Lecture	60

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks
JAN-PAR	PAR	January	12 Weeks
SEP-PAR	PAR	September	12 Weeks

SEP_NS-PAR	PAR	September (Non-standard start date)	12 Weeks

Aims and Outcomes

Aims	The aim of this module is to develop students' skills in the mathematical principles and theories that underpin the engineering curriculum. Students will be introduced to mathematical methods and statistical techniques in order to analyse and solve problems within an engineering context.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Identify the relevance of mathematical methods to a variety of conceptualised engineering examples.
MLO2	2	Investigate applications of statistical techniques to interpret, organise and present data.
MLO3	3	Use analytical and computational methods for solving problems by relating sinusoidal wave and vector functions to their respective engineering applications.
MLO4	4	Examine how differential and integral calculus can be used to solve engineering problems.

Module Content

Outline Syllabus	Mathematical concepts: Dimensional analysis arithmetic and geometric progressions Functions: Exponential, logarithmic, trigonometric and hyperbolic functionsStatistics: Mean, standard deviation, correlation, regressionProbability theoryTrigonometric functions: Sine waves, trigonometric and hyperbolic identitiesVectors: Notation and properties, 3-dimensional vectorsCalculus: Differentiation (including chain, product and quotient rules) and integration (including integration by parts, substitution)Exponential functionsEngineering applications of mathematics
Module Overview	
Additional Information	

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Exam	Multiple-choice online test	50	1.5	MLO2, MLO3
Report	Written Assignment	50	0	MLO1, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Christian Matthews	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings