

Summary Information

Module Code	5500ICPDCE
Formal Module Title	Advanced Mathematics
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
International College of Business and Technology

Learning Methods

Learning Method Type	Hours
Lecture	15

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-PAR	PAR	September	12 Weeks

Aims and Outcomes

Aims	To develop skills in advanced engineering mathematics for application to the solution of Civil and Building Services Engineering problems.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Apply statistical tests and investigate correlation.
MLO2	2	Apply numerical methods to Civil and Building Services Engineering problems.
MLO3	3	Solve first order ordinary differential equations relevant to engineering problems.
MLO4	4	Solve second order ordinary differential equations relevant to engineering problems.

Module Content

Outline Syllabus	Use advanced mathematics in the solution of Civil and Building Services Engineering problems. Correlation analysis, Linear regression Numerical integral: determine the integral of functions using mid-ordinate, trapezoidal and Simpson's rules Numerical estimation methods: method of bisection, Newton-Raphson iteration method, estimates of scientific functions First order differential equations: engineering use, separation of variables, integrating factor method, complementary function and particular integral Application of second order differential equations: Introduction to Finite Difference and finite element methods
Module Overview	
Additional Information	

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Exam	Examination	100	3	MLO1, MLO2, MLO3, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Alison Cotgrave	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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