MODULE DESCRIPTOR

Module Title

Engineering Analysis 2

Reference	EN4500	Version	5
Created	April 2023	SCQF Level	SCQF 10
Approved	March 2004	SCQF Points	15
Amended	August 2023	ECTS Points	7.5

Aims of Module

To provide the student with the ability to analyse and predict the behaviour of engineering components and systems

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

1	Critically analyse the finite element methods applied to static structures
2	Apply risk & reliability techniques to engineering systems for enhanced integrity.
3	Interpret the vibrational behaviour of complex systems.
4	Perform static analysis on compound material structures.

Indicative Module Content

Introduction to finite element analysis; application of FE methods in the solution of static 2D problems; vibration analysis of multi degree-of-freedom and continuous systems to periodic and transient loading; reliability analysis of repairable and non-repairable systems; shrink fits; compound cylinders.

Module Delivery

Module delivered by means of lectures, tutorials and self-guided study, integrated with computer-based applications.

Indicative Student Workload	Full Time	Part Time
Contact Hours	50	50
Non-Contact Hours	100	100
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	150
Actual Placement hours for professional, statutory or regulatory body		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Coursework	Weighting:	30%	Outcomes Assessed:	1
Description:	Coursework assessment using FEA theory and software.				

Component 2

Type:	Examination	Weighting:	70%	Outcomes Assessed:	2, 3, 4
Description:	Closed book examination.				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

The module has 2 components and to gain an overall pass a minimum D grade must be achieved in each component. The component weighting is as follows: C1 is worth 30% and C2 is worth 70%.

		Coursework:						
		A	**B**	**C**	**D**	**E**	**F**	**NS**
	A	A	A	B	B	E	E	
	B	B	B	B	C	E	E	
	C	B	C	C	C	E	E	
Examination:	**D**	C	C	D	D	E	E	
	E	E	E	E	E	E	F	
	F	F	F	F	F	F	F	
	NS	Non-submission of work by published deadline or non-attendance for examination						

Module Requirements

Prerequisites for Module	Engineering Analysis 1 (EN3501).
Corequisites for module	None.
Precluded Modules	None.

ADDITIONAL NOTES

An Indicative Bibliography will normally reference the latest edition of a text. In some cases, older editions are equally useful for students and therefore, those are the editions that may be stocked.

INDICATIVE BIBLIOGRAPHY

1	FAGAN, M.J., 1992. Finite Element Analysis : Theory and Practice. Harlow: Longman.
2	O'CONNOR P.D.T., 2011. Practical Reliability Engineering. 5th ed. Chichester: J Wiley & Sons.
3	DAVIDSON, J. and HUNSLEY, C., 1994. The Reliability of Mechanical Engineering Systems. London: Mechanical Engineering Publications.
4	KELLY S.G., 2012. Mechanical Vibrations: Theory and Applications (SI edition). Cengage Learning.
5	RAO, S.S., 2016, Mechanical Vibrations. 6th ed. Pearson Prentice Hall.