MODULE DESCRIPTOR

Module Title

Digital Signal Processing

Reference	EN4504	Version	1
Created	May 2023	SCQF Level	SCQF 10
Approved	August 2023	SCQF Points	15
Amended		ECTS Points	7.5

Aims of Module

None.

Learning Outcomes for Module

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

1	Apply digital signal processing principles to the solution of complex problems with awareness of wider context of engineering.
2	Apply signal processing to model complex problems.
3	Analyse complex problem to reach substantiated conclusions, involving evaluating digital signal processing principles, techniques, and systems.
4	Evaluate advanced signal processing technical literature and other source of information critically to solve complex problems.

Indicative Module Content

signal classification, Z-Transform, discrete signals and systems, discrete time and frequency, digital filters, FIR and IIR filters design, filter implementation, Discrete Fourier Transform, Fast Fourier Transform, Adaptive filtering, Spectral analysis, Wavelet Transform, DSP implementation.

Module Delivery

This is a lecture-based module supplemented with tutorial sessions.

Indicative Student Workload	Full Time	Part Time
Contact Hours	40	40
Non-Contact Hours	110	110
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: | 100% | Outcomes Assessed: | 1, 2, 3, 4 |

Description: coursework of applying principle, analysing and modelling complex problems, and designing and evaluating signal processing techniques and systems through computer simulation.

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

The module has 1 assessment component and to gain a pass a minimum D grade must be achieved.

Module Grade	Minimum Requirements to achieve Module Grade:
A	A
B	B
C	C
D	D
E	E
F	F
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	Signal Acquisition, Instrumentation and Control (EN3500)
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

1 MULGREW, B., GRANT, P. and THOMPSON, J., 2003. Digital Signal Processing: Concepts & Applications. 2nd ed. Palgrave.

2 IFEACHOR, E.C. and JERVIS, B.W., 2001. 2nd ed. Digital Signal Processing. Prentice Hall.

3 STEVEN, S. The Scientist and Engineer's Guide to Digital Signal Processing. (Available FREE in electronic form at http://www.dspguide.com/).

4 Giron-Sierra, Jose Maria,2017. Digital signal processing with Matlab examples. Volume 2, Decomposition, recovery, data-based actions. 7 Ifeachor, Emmanuel C. and Jervis,