MODULE DESCRIPTOR

Module Title

Advanced Data Networks

Reference	EN4530	Version	6
Created	August 2021	SCQF Level	SCQF 10
Approved	March 2004	SCQF Points	15
Amended	August 2021	ECTS Points	7.5

Aims of Module

To provide the student with the ability to evaluate the techniques and systems used in the design and operation of high speed data networks.

Learning Outcomes for Module

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

1	Identify and explain the factors that affect the design and performance of high speed wide area networks.
2	Evaluate the coding and protocols used in the transmission of multimedia.
3	Apply knowledge of network simulation software and understanding of the factors influencing the design and performance of data networks, to design an optimised network from user specifications.
4	Apply knowledge of operating principles of high performance Local Area Networks, to predict network performance and select appropriate technology for network design.
5	Critically compare and evaluate different coding approaches for a variety of video sequences.

Indicative Module Content

Multimedia Coding and Transport: Transform coding, entropy coding, evaluation of codec performance, network protocols for video. Wide Area Networks: Design and performance, congestion and traffic analysis, routing. Wireless Local Area Networks: Standards, topology, design, performance.

Module Delivery

This is a lecture-based course supplemented with tutorial, laboratory sessions and student-centred learning.

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Indicative Student Workload		Full Time	Part Time
Contact Hours		42	42
Non-Contact Hours		108	108
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:	5
Description:	Logbook based on laboratory work.				

Component 2

Type:	Examination	Weighting:	70%	Outcomes Assessed:	1, 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**
Examination:	**A**	A	A	B	B	E	E	
	B	B	B	B	C	E	E	
	C	B	C	C	C	E	E	
	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	Data Networks (EN3531) or equivalent.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

1. RICHARDSON, I. E. G., H.264 and MPEG-4 Video Compression ? Video Coding for Next-generation Multimedia, John Wiley & Sons Ltd, 2003
2. STALLINGS, W., 2014. Data and Computer Communications, 10th ed, Prentice Hall.