MODULE DESCRIPTOR

Module Title

Subsea Control Systems

Reference	ENM240	Version	4
Created	August 2021	SCQF Level	SCQF 11
Approved	April 2008	SCQF Points	15
Amended	August 2021	ECTS Points	7.5

Aims of Module

To provide a basis of understanding of control, electrical power distribution, control aspects of subsea processing, and telemetry systems to allow integrative design.

Learning Outcomes for Module

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

1	Demonstrate extensive, detailed critical knowledge and understanding of the capabilities and constraints of typical Subsea Production Control Systems, and the application of software, safety and system engineering in such development.
2	Critically analyse and evaluate sampling, modulation and multiplexing systems.
3	Critically analyse and evaluate key subsea signal/power transmission elements and their application in Subsea Production Control System.
4	Develop and design an integrated Subsea Production Control System.

Indicative Module Content

Overview of Subsea Control Systems; Introduction to Control Theory; Hydraulic, Electro-hydraulic, and All Electric Systems; Telemetry; Signal Integrity, Data Conditioning and Compression; Sampling, Coding, Modulation and Multiplexing; Optical Fibre Transmission; Subsea Processing.

Module Delivery

The module will be delivered by means of face to face (full time) and online (online learning) lectures, tutorials, and self guided study.

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Indicative Student Workload	Full Time	Part Time
Contact Hours	48	60
Non-Contact Hours	102	90
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:	50%	Outcomes Assessed:	4

Description:	Report and includes online activity for online learning students and classroom test for full time students.

Component 2

Type:	Examination	Weighting:	50%	Outcomes Assessed:	1, 2, 3

Description:	Closed book examination.

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

The module has 2 components and an overall grade D is required to pass the module. The component weighting is as follows: C1 is worth 50% and C2 is worth 50%.

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

Module Requirements

Prerequisites for Module	Normally a UK honours degree, or equivalent, in Engineering or related discipline at class 2.2 or above and proficiency in English language for academic purposes (IELTS minimum score of 6.5 or equivalent).
Corequisites for module	None.
Precluded Modules	This module is not suitable for students following an MSc in Professional Studies programme unless they meet the entry qualifications stipulated in the University Regulations on admission and the prerequisites above.

ADDITIONAL NOTES

Part Time refers to Online Learning (OL).

INDICATIVE BIBLIOGRAPHY

1. ADRIAANSEN, L., 2004. Subsea Control and Data Acquisition: Experience and Challenges (Imeche Event Publications), Professional Engineering Publishing.

2. Subsea Controls and Data Acquistion 2006: Controlling the Future Subsea. Proceedings for the international conference held in Toulon, France, on 7?8 June.

3. BAI, Y. and BAI, Q.,2012. Subsea engineering handbook. Oxford, UK: Elsevier Inc.