MODULE DESCRIPTOR

Module Title

Subsea Systems

Reference	ENM227	Version	9
Created	August 2021	SCQF Level	SCQF 11
Approved	February 2010	SCQF Points	15
Amended	August 2021	ECTS Points	7.5

Aims of Module

To provide the student with extensive knowledge and understanding of the design of a subsea hydrocarbon production system, the economics and project processes involved, and the activities necessary to ensure system availability. To provide a broad view of subsea engineering fundamentals and application, and the interfaces with associated disciplines such as drilling, the majority of which will be studied in more depth in other modules.

Learning Outcomes for Module

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

1	Demonstrate extensive, detailed and critical knowledge and understanding of design interfaces, drivers, and economics, and their application to subsea production system.
2	Critically analyse and evaluate the requirements and constraints of subsea developments and the development preliminary field architecture and system configuration meeting drilling, flow assurance, and integrity management needs.
3	Critically analyse and evaluate the specialised subsea equipment (including trees, control systems, manifold, jumpers, and risers) used for subsea field development.
4	Demonstrate extensive, detailed and critical knowledge and understanding of the principles of subsea project execution and operation.

Indicative Module Content

Background of Offshore & Susbsea Operations; Subsea Systems Fundamentals; Field Architecture; Production Equipment; Subsea Control System; Flowlines, Risers & Jumpers; Flow Assurance & Corrosion; System Configuration; Inspection, Monitoring & Intervention; Project Execution; Evolving Technology.

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:	1, 2
Description:	Report.				

Component 2

Type:	Examination	Weighting:	50%	Outcomes Assessed:	3, 4
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**
Coursework:	**A**	A	A	B	B	C	E	
	B	A	B	B	C	C	E	
	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 a 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. BAI, Y. and BAI, Q.,2012. Subsea engineering handbook. Oxford, UK: Elsevier Inc.
2. ARNOLD, K.E., Ed. 2007. Petroleum Engineering Handbook, Vol III Facilities and Construction Engineering, Ch14. Richardson, TX:SPE
3. BAI, Y., BAI, Q., 2005. Subsea Pipelines and Risers. Oxford:Elsevier
4. CHAKRABARTI, S. 2005. Handbook of Offshore Engineering, Vol II. Oxford:Elsevier
5. MATHER, A. 2000. Offshore Engineering: An Introduction. 2nd Ed. London: Witherby & Co. Ltd.
6. MITCHELL, R.F., Ed. 2006. Petroleum Engineering Handbook, Vol II Drilling Engineering. Richardson, TX:SPE