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## MODULE DESCRIPTOR

### Module Title

Subsea Systems

Reference	ENM227	Version	6
Created	February 2017	SCQF Level	SCQF 11
Approved	February 2010	SCQF Points	15
Amended	June 2017	ECTS Points	7.5

### Aims of Module

To provide the student with fundamental 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 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 broad knowledge and understanding of subsea production system design interfaces, drivers, and economics.
- 2 Understand the requirements, constraints, and objectives of a subsea development to devise a preliminary field architecture and system configuration meeting drilling, flow assurance, and integrity management needs.
- 3 Describe the unique features and selection criteria for specialised subsea equipment including trees, control systems, manifold, jumpers, and risers, and perform simple calculations associated with operation of these equipment.
- 4 Understand the fundamentals of subsea project execution and operation.

### Indicative Module Content

Background of Offshore & Subsea 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 distance learning) lectures, tutorials, and self guided study.

**Indicative Student Workload**

	Full Time	Part Time
Contact Hours	70	50
Non-Contact Hours	80	100
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	150
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

**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:	A coursework which involves preparation of an individual report. Students will be expected to identify missing information and carry out further independent research where necessary.				

**Component 2**

Type:	Examination	Weighting:	50%	Outcomes Assessed:	3, 4
Description:	A closed book examination.				

**MODULE PERFORMANCE DESCRIPTOR****Explanatory Text**

In order to pass the module, students should achieve a mark of at least 40% in each component (which has a weighting of 30% or more) and an overall grade of D or greater. Non Submission for any assessment component will result in an overall grade of NS for the module.

Module Grade	Minimum Requirements to achieve Module Grade:
<b>A</b>	Greater than or equal to 70%
<b>B</b>	In the range 60% to 69%
<b>C</b>	In the range 55% to 59%
<b>D</b>	In the range 50% to 54%
<b>E</b>	In the range 40% to 49%
<b>F</b>	Less than 40%
<b>NS</b>	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