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MODULE DESCRIPTOR

Module Title

Offshore Engineering

Reference	EN3581	Version	4
Created	May 2017	SCQF Level	SCQF 9
Approved	March 2004	SCQF Points	15
Amended	May 2017	ECTS Points	7.5

Aims of Module

To provide the student with the ability to recognise the core principles of offshore technology.

Learning Outcomes for Module

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

- 1 Explain how a well is drilled, including the functions of the specialist equipment.
- 2 Summarise the fundamentals of petroleum technology, including oil and gas reservoirs.
- 3 Apply standard hydrodynamic equations to predict the loading applied to fixed structures.
- 4 Appraise various options for the development of offshore oil and gas fields.

Indicative Module Content

* Overview of overall well completion from exploration to drilling, completion and production. The Drilling System and Equipment: * Types of Drilling Rigs. * Drilling Rig Components: Derricks/Masts, Prime Movers; Mud Pumps and Circulation systems; Power transmission, Rotary and hoisting systems; Draw-work; Drillstring and BHA; Pipe handling and racking systems. * Basic introduction to well design: Factors relating to definition of well pattern(Vertical/directional wells, extended reach, multilateral and horizontal wells, etc); Drillstring and BHA design. Production development options: * Platforms-steel/ concrete * Floating systems-semi-submersible or FPSO * TLPs *Subsea systems-tieback; risers-rigid/flexible *Subsea trees classic v horizontal * Pipelines v tankers. Hydrodynamic effects * Environmental conditions - wind, wave and current *Wave loading and structural response * Constitution and properties of oil and natural gas * Oil and gas reservoirs * Phase behaviour of hydrocarbon systems * Petroleum Fluids

Module Delivery

This is a lecture-based module supplemented by tutorials and directed study.

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
<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: 30% Outcomes Assessed: 2
 Description: A series of in-class quizzes.

Component 2

Type: Examination Weighting: 70% Outcomes Assessed: 1, 3, 4
 Description: A closed book examination.

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

To pass the module, you must achieve a 40% weighted average mark from the exam and coursework. In addition you need to achieve at least 35% in both the individual exam and the coursework components.

Module Grade	Minimum Requirements to achieve Module Grade:
A	=>70%
B	60-69%
C	50-59%
D	40-49%
E	35-39%
F	0-34%
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module None.
 Corequisites for module None.
 Precluded Modules None.

INDICATIVE BIBLIOGRAPHY

- 1 RABIA, H., 1985, Oilwell Drilling Engineering - Principles and Practice. London: Graham & Trotman
- 2 JAHN F., COOK, M. AND GRAHAM, M., 2008, Hydrocarbon Exploration and Production. Amsterdam : Elsevier.
- 3 International Association of Drilling Contractors (IADC), 2015 IADC Drilling Manual, 12th edition. International Association of Drilling Contractors (IADC), Houston, Texas.
- 4 SELLEY, R., Elements of Petroleum Geology ISBN-13: 978-0123860316
- 5 RANDALL, R.E., 2010. Elements of Ocean Engineering, 2nd ed. College Station, TX.: Society of Naval Architects.