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MODULE DESCRIPTOR

Module Title

Production Operations

Reference	ENM205	Version	5
Created	March 2017	SCQF Level	SCQF 11
Approved	April 2006	SCQF Points	15
Amended	June 2017	ECTS Points	7.5

Aims of Module

This module aims to extend abilities developed in module ENM202 with a particular focus on specifying production flow measurement equipment, managing production data, maintaining the integrity of production facilities by addressing corrosion and production chemistry issues. The module also develops abilities in production enhancement through well intervention, treatment and formation stimulation.

Learning Outcomes for Module

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

1	Identify best practice in measurement system design and application and compare the strengths and weaknesses of various primary devices.
2	Demonstrate the ability to extract, analyse and present useful data from a production data management system.
3	Discuss the properties and limitations of the principal materials used within the oil and gas industry. Explain the mechanisms and the methods of control for the various forms of corrosion prevalent within the oil and gas industry.
4	Analyse the various threats to well optimisation caused by well integrity, flow assurance and fluids treatment issues in a production and injection system.
5	Prepare a work programme for managing well integrity and flow assurance in a mature asset.
6	Compare and contrast the various stimulation techniques available for production and injection wells.
7	Prepare a well intervention programme to maximise productivity from a mature asset.

Indicative Module Content

1) Production Measurement 2) Production Database Management 3) Production Chemistry & Flow Assurance 4) Corrosion & Material Science 5) Well Intervention & Treatment 6) Formation Stimulation

Module Delivery

This module may be delivered by means of lectures, tutorials and student-centred learning activities supplemented by industrial visits/industry speakers.

Module Ref:	ENM205 v5

Indicative Student Workload	Full Time	Part Time
Contact Hours	60	10
Non-Contact Hours	90	140
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:	2, 5, 7
Description:	Component 1 is a coursework which requires the preparation of a short report presenting results.				

Component 2

Type:	Examination	Weighting:	50%	Outcomes Assessed:	1, 3, 4, 6
Description:	Component 2 is a closed book examination.				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

In order to pass, students should achieve a mark of at least 40% in each component (which has a weighting of 30% or more) and an overall grade D or greater.

Module Grade	Minimum Requirements to achieve Module Grade:
A	Greater than or equal to 70%
B	In the range 60% to 69%
C	In the range 55% to 59%
D	In the range 50% to 54%
E	In the range 40% to 49%
F	Less than 40%
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). ENM200 Subsurface, ENM201 Wells and ENM202 Facilities.
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.

INDICATIVE BIBLIOGRAPHY

1	Economides, M.J., Hill, A.D., Ehlig-Economides, C. and Zhu, D., 2012. Petroleum production systems. Pearson Education.
2	Economides, M.J. ed., 2000. Reservoir stimulation (Vol. 18). New York: Wiley
3	Economides, M.J. and Martin, T., 2007. Modern fracturing: Enhancing natural gas production. Houston, Texas: ET Publishing
4	Speight, J.G., 2014. The chemistry and technology of petroleum. CRC press
5	Kelland, M.A., 2014. Production chemicals for the oil and gas industry. CRC press
6	Carroll, J., 2014. Natural gas hydrates: a guide for engineers. Gulf Professional Publishing
7	Trethewey, K.R. and Chamberlain, J., 1995. Corrosion for science and engineering. Prentice Hall
8	Callister, W.D. and Rethwisch, D.G., 2007. Materials science and engineering: an introduction. New York: Wiley