

## MODULE DESCRIPTOR

### Module Title

Production Operations

Reference	ENM205	Version	8
Created	August 2021	SCQF Level	SCQF 11
Approved	April 2006	SCQF Points	15
Amended	September 2021	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 from first principles best practice in measurement system design and application and critically differentiate the strengths and weaknesses of various primary devices.
- 2 Clearly and logically demonstrate the ability to extract, analyse and present useful data from a production data management system.
- 3 Reasonably identify and discuss the properties and limitations of the principal materials used within the oil and gas industry and critically analyse the various threats to well optimisation caused by well integrity, flow assurance and fluids treatment issues in a production and injection system.
- 4 Design and develop programmes for managing well integrity, flow assurance and maximising productivity on a mature asset.
- 5 Compare and contrast the various stimulation techniques available for production and injection wells.

### 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.

Indicative Student Workload	Full Time	Part Time
Contact Hours	63	56
Non-Contact Hours	87	94
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, 4
Description:	Coursework.				

### Component 2

Type:	Examination	Weighting:	50%	Outcomes Assessed:	1, 3, 5
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 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.

**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