

This Version is No Longer Current
The latest version of this module is available [here](#)

MODULE DESCRIPTOR

Module Title

Advanced Well Engineering

| | | | |
|-----------|---------------|-------------|---------|
| Reference | ENM212 | Version | 6 |
| Created | January 2021 | SCQF Level | SCQF 11 |
| Approved | April 2006 | SCQF Points | 15 |
| Amended | February 2021 | ECTS Points | 7.5 |

Aims of Module

This module focuses on the application of engineering practices to optimise and deliver enhanced productivity.

Learning Outcomes for Module

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

- 1 Design a feasible effective strategy for optimising a mature asset using and justifying appropriate advanced drilling technologies, demonstrating awareness of novel researched technologies.
- 2 Analyse, apply and implement a range of intervention techniques and well monitoring technologies to optimise well uptime.
- 3 Demonstrate awareness and construct an example of QRA based well programming.
- 4 Produce a conceptual design for a deepwater well demonstrating awareness of deep water drilling considerations and challenges.

Indicative Module Content

1. High Pressure / High Temperature wells Techniques and Equipment 2. Deepwater Techniques and considerations 3. Underbalanced and TTRD Theory and practice 4 Extended Reach, Multilateral and Designer Design considerations Technology 5. Workover, Intervention and Well Management Techniques Productivity Issues Technology 6. QRA based well programming 7. Advanced Wells Drilling Equipment Completion Equipment Intelligent Wells Material Selection

Module Delivery

The module is presented through lectures, guest speakers from industry, case work and student centred learning.

Indicative Student Workload

| | Full Time | Part Time |
|--|-----------|-----------|
| Contact Hours | 40 | 30 |
| Non-Contact Hours | 110 | 120 |
| 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: | 100% | Outcomes Assessed: | 1, 2, 3, 4 |
| Description: | The assessment comprises of a written report (80%) and presentation (20%). | | | | |

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

In order to pass the module, students should achieve a mark of at least 50% and an overall grade of 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 2.2 honours degree or above, in Engineering or a related discipline. Proficiency in English language for academic purposes, or IELTS score of 6.5 or above. Qualification through previous relevant industry experience may be considered. |
| 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 RABIA H. 1985. Oilwell Drilling Engineering. Graham & Trotman
- 2 ISLAM, M. RAFIQUL and HOSSAIN, M. ENAMUL. 2020. Drilling Engineering: Towards Achieving Total Sustainability. San Diego: Elsevier Science & Technology.
- 3 AADNOY, B.S. 2010. Modern Well Design. 2nd Edition. CRC Press
- 4 GEFEI, L. 2021. Applied Well Cementing Engineering. Gulf Professional Publishing.
- 5 BOURGOYNE et al. 1984. Applied Drilling Engineering. SPE Publications.
- 6 ROBINSON, H. and GARCIA, J. 2015. Drillers knowledge book: creative solutions for today's drilling challenges. Houston, Texas: International Association of Drilling Contractors.
- 7 Journal articles, conference proceedings, and appropriate websites. Example OnePetro, Knovel, ASME.