

MSc Petroleum Engineering

This document provides a definitive record of the main features of the programme and the learning outcomes that a typical student may reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities provided. This programme specification is intended as a reference point for prospective students, current students, external examiners and academic and support staff involved in delivering the programme and enabling student development and achievement.

Programme Information

Programme Title	Petroleum Engineering		
Award(s)	MSc		
Programme Code	J9U7		
Associateship	Royal School of Mines		
Awarding Institution	Imperial College London		
Teaching Institution	Imperial College London		
Faculty	Faculty of Engineering		
Department	Department of Earth Science and Engineering		
Mode and Period of Study	1 academic year, full-time		
Cohort Entry Points	Annually in October		
Relevant QAA Benchmark Statement(s) and/or other external reference points	Master's Degrees in Engineering		
Total Credits	ECTS:	90	CATS: 180
FHEQ Level	Level 7		
EHEA Level	2 nd cycle		
External Accreditor(s)	Institute of Materials, Minerals and Mining		
Specification Details			
Student cohorts covered by specification	2016/17 entry		
Person responsible for the specification	Professor Martin Blunt, Director of MSc Petroleum Engineering Course		
Date of introduction of programme	1913		
Date of programme specification/revision	June 2016		

Description of Programme Contents

This MSc is a one-year, full-time course that trains petroleum engineering professionals to understand and effectively utilise the workflow concepts now prevailing in the oil industry, and prepares them fully for work in multidisciplinary teams.

The programme provides a 12-month conversion from other engineering and science-based foundations into the specialties of petroleum engineering, and is designed for both those with industrial experience and recent graduates.

Learning Outcomes

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial College degree programme. The Graduate Attributes are available at: www.imperial.ac.uk/students/academic-support/graduate-attributes

Knowledge and Understanding of:

- Reservoir characterisation
- Reservoir modelling
- Reservoir simulation
- Field management
- The links between the various types of field data
- The processes for integrating and processing all available information in order to make better reservoir management decisions.

Intellectual Skills

- Interpret and develop models from uncertain information
- Operate effectively as petroleum engineer

Practical Skills

- The obtaining of oil from an oil reservoir - a quantitative demonstration of porosity, permeability, relative permeability, entrapment etc. by means of a sand-pack (related to Geology and Rock Properties course 1.5.1)
- Porosity and permeability determinations - a demonstration of the processes and difficulties involved in measuring these parameters (related to Geology and Rock Properties course 1.5.1)
- Rock resistivity - shows the basic principles of rock resistivity using saline solutions (related to Geology and Rock Properties course 1.5.1)
- 2-Phase Flow - a study of horizontal, vertical and inclined 2- phase flow patterns (related to Production Engineering course 3.1-3.4 and Process Engineering course 5.1)

Transferable Skills

- To enable students to communicate with industrial colleagues and to be aware of the latest developments in the industry. All students will give a talk as part of the Group Project in the Autumn and Spring terms.

Entry Requirements	
Academic Requirement	<p>Minimum First class (1st) UK Honours degree (or equivalent) in a science or engineering subject.</p> <p>Professionals with other qualifications but a minimum of three years' relevant industrial experience are also encouraged to apply.</p>
Non-academic Requirements	None
Applicants may be invited to attend an interview.	
English Language Requirement	IELTS 6.5 with a minimum of 6.0 in each element or equivalent.
<p>The programme's competency standards document can be found at: http://www.imperial.ac.uk/engineering/departments/earth-science/prosp-students/pg-courses/programme-specifications/</p>	
Learning & Teaching Strategy	
Scheduled Learning & Teaching Methods	<ul style="list-style-type: none"> • Lectures • Practical classes • Workshops • Fieldwork • Group projects
E-learning & Blended Learning Methods	<ul style="list-style-type: none"> • On-line lecture materials
Project and Placement Learning Methods	<ul style="list-style-type: none"> • Group projects • Independent project (often via industry placements)
Assessment Strategy	
Assessment Methods	<ul style="list-style-type: none"> • Written Examination • Oral and poster presentations • Reports • Fieldwork exercises
Academic Feedback Policy	
<p>Feedback is ongoing; it happens during practical classes, in workshops, in lectures, in tutorials and in almost any part of your learning. During fieldwork feedback is provided up to 12 hours each day, and there are other areas where students and staff provide feedback. Feedback is intended to extend your knowledge, skills and learning in a variety of ways.</p> <p>If there is written feedback on submitted coursework, it is provided within two weeks of submission (minor pieces of coursework) or six weeks (major pieces of coursework – Wytch Farm group projects, independent project). Some staff chose to give verbal feedback on coursework at the start</p>	

of the next teaching session, others give written feedback. Not every course will be the same. If feedback is not provided by staff within two weeks of submitting written work and you have not been notified of a delay, we ask students to notify the Course Director by e-mail.

Where practical, and in some cases this will not be practical, staff will give feedback to the entire student group on the examinations assessment. Staff are normally extremely willing to give individual feedback to students, either their personal tutees or in class as the needs arise.

Re-sit Policy

The College's Policy on Re-sits is available at: www.imperial.ac.uk/registry/exams/resit

Mitigating Circumstances Policy

The College's Policy on Mitigating Circumstances is available at: www.imperial.ac.uk/registry/exams

Assessment Structure

Marking Scheme

Distinction: to be awarded where a candidate has achieved an aggregate mark of 70% or greater across the programme as a whole, including a mark of 70% or greater in each of two elements of the course (i.e. examinations and independent project) with no examination mark below 60%.

Merit: to be awarded where a candidate has achieved an aggregate mark of 60% or greater across the programme as a whole including a mark of 60% in each of two elements of the course (examinations and independent project) with no examination mark below 50%.

Pass: to be awarded where a candidate has achieved an aggregate mark of 50% or greater across the programme as a whole and more than 50% in each element (coursework, examinations and independent project).

Fail: results when a candidate has achieved an aggregate mark of less than 50% or across the programme as a whole, and/or has failed to pass one of the three elements of the course.

All candidates must pass at least **three** of the five examinations papers.

Recommendations for final degree results are at the discretion of the Examinations' Board.

Module Weightings		
Element (% Weighting)	Module	% Module Weighting
Element One Coursework (20%)	Geology Field Work	14.27% (within the element)
	Production Logging	14.27% (within the element)

	Well Test Analysis	14.27% (within the element)
	Reservoir Performance Predictors	14.27% (within the element)
	Numerical Reservoir Simulators	14.27% (within the element)
	Upscaling	14.27% (within the element)
	Group Project	14.27% (within the element)
Element Two Exams (60%)	Fundamental Knowledge	20% (within the element)
	Reservoir Characterisation	20% (within the element)
	Well Performance	20% (within the element)
	Reservoir Performance	20% (within the element)
	Field Development	20% (within the element)
Element Three Independent Project (20%)	Independent Project	100% (within the element)

Indicative Module List											
Code	Title	Core/ Elective	L&T Hours	Ind. Study Hours	Place- ment Hours	Total Hours	% Written Exam	% Course- work	% Practical	FHEQ Level	ECTS
1	Fundamental Knowledge	CORE	147	228	0	375	80	20	0	7	15
2	Reservoir Characterisation	CORE	165	210	0	375	80	20	0	7	15
3	Well Performance	CORE	45	142.5	0	187.5	80	20	0	7	7.5
4	Reservoir Performance	CORE	180	195	0	375	80	20	0	7	15
5	Field Development	CORE	87	100.5	0	187.5	0	100	0	7	7.5
6	Individual Project	CORE	450	300	0	750	0	100	0	7	30

Supporting Information

The Programme Handbook is available at: <http://www.imperial.ac.uk/earth-science/prosp-students/pg-courses/course-outlines/>

The College's entry requirements for postgraduate programmes can be found at: www.imperial.ac.uk/study/pg/apply/requirements

The College's Quality & Enhancement Framework is available at: www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance

The College's Academic and Examination Regulations can be found at: <http://www3.imperial.ac.uk/registry/proceduresandregulations/regulations>

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<http://www.imperial.ac.uk/admin-services/secretariat/college-governance/charters-statutes-ordinances-and-regulations/>

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