

Student funding available

Offshore and Ocean Technology MSc Full and part-time

With options in

- Offshore Materials Engineering
- Offshore Renewable Energy
- Pipeline Engineering
- Risk Management
- Subsea Engineering

The UK receives a significant contribution to its economy from sea-related activities, which are estimated to account for nearly 5% of the Gross Domestic Product (GDP). These activities provide employment for almost one million people. Offshore oil and gas exploration and production activities account for close to 300,000 jobs and employment in the offshore renewable energy industry is also rising. Demand for well-qualified personnel is high and likely to remain so.

The MSc Offshore and Ocean Technology course aims to provide an understanding of the underlying science, engineering principles and relevant management techniques in relation to the specialised option selected. Our graduates are highly sought after internationally.

Focus on your career

Successful students develop diverse and rewarding careers in the extremely exciting and challenging fields of offshore oil and gas exploration, underwater engineering, pipeline engineering, risk management in offshore and marine operations, and the emerging offshore renewable energy industry. The international nature of such activities means that career opportunities are not restricted to the domestic market; Cranfield graduates develop careers around the world.

Benefit from our reputation

Cranfield University has an international reputation for its expertise in energy and offshore technology. The MSc Offshore and Ocean Technology is accredited by the Institute of Marine Engineering, Science and Technology (IMarEST) for CMarTech and MIMarEST. All options are also accredited for CEng. In addition, the MSc has been approved by the Energy Institute (EI) for membership, and as meeting the Engineering Council (UK)'s Further Learning requirements for Chartered Engineer registration under UK SPEC. These connections will increase your employability.

Benefit from our links with industry

This well established, yet continually developing course, benefits from extensive input from industry. Lecturers from a broad range of companies and organisations including Shell UK, Total, Azur Offshore Ltd, Marine Current Turbines Ltd, GE Wind and the Crown Estate make a significant contribution to the coursework. This complements the teaching delivered by subject specialists based within the Energy Technology Centre at Cranfield.

Benefit from practical experience in your work-based projects

Individual and group projects are usually undertaken in collaboration with industry. Project work enables you to assimilate the knowledge and skills gained from the taught element of the course and put them into real-world practise while gaining transferable skills in project management, teamwork and independent research. Part-time students benefit from addressing their employer's real business problems supported by academic supervision.



Courtesy Jason Bulley

Accredited by





Courtesy of LM Glasfiber AS

Offshore and Ocean Technology options

The MSc Offshore and Ocean Technology allows specialisation through selection of one of five options. Advice and help is available at interview stage, if required, to help students in their decision making process about which option to pursue.

"It is projected that offshore oil and gas production will constitute a major proportion of the world energy supply in the near future and I wanted to be an active part of that frontier. Since I was working in a predominantly onshore company, I identified that I needed to develop the offshore skills to be engaged in sector and coming to Cranfield was key to acquiring this requisite knowledge for challenging roles in the offshore industry."

Soala Secon Benibo
Subsea Engineering option, 2006-07

Offshore Materials Engineering

The offshore environment can be extremely hostile, placing heavy demands on both fixed and floating structures. It is crucial that the behaviour of the materials from which they are built is fully understood. A very large number of structures associated with oil-gas already exist and in the future there are likely to be many more associated with renewable sources of energy. This option focuses on understanding the influences on the choice and use of materials offshore and how different materials can be selected to help overcome some of the problems. Students benefit from access to a range of facilities including our state-of-the-art corrosion laboratories to support investigations of materials used offshore.

Offshore Renewable Energy

The offshore renewable energy market is growing rapidly in the UK and Europe, with firm targets for delivery of a significant amount of energy from renewable sources by 2020. Many of the issues faced by this new activity are similar to those faced many years ago by the offshore oil and gas industry and so this course takes full advantage of the experience gained in this sector. This option focuses on the technology and management issues of offshore renewable devices, with a strong emphasis on the effects of the marine environment.

Pipeline Engineering

Subsea pipelines are key both to field development and the transportation of oil and gas. It is also a key global industry. This option focuses on the skills required to understand the materials, installation and maintenance issues associated with this important infrastructure. Students on this option benefit from access to a range of facilities including Cranfield's Welding Engineering Research Centre's specialist facilities for pipeline-related work.

Risk Management

Risk management is now the bedrock of many industries. A risk-based approach has been almost universally adopted in the offshore industry with the aim of providing better safety and improved protection for the environment. This option focuses on the key techniques used in the offshore industry. It addresses both qualitative and quantitative methodologies, and explains which techniques are appropriate to different applications.

Subsea Engineering

Subsea engineering focuses on the deepwater issues of oil and gas exploitation. Operations have moved from relatively shallow water to depths that now demand totally different engineering solutions. This option addresses both the hardware that is used subsea, such as wellheads and separators, and also covers important issues such as field layout, flow assurance and installation/maintenance.



The modules

The table below identifies the compulsory modules associated with each of the offshore options. Students select two elective modules from the remaining list. Detailed information on each module is available on our website.

Course modules	Offshore Materials Engineering	Offshore Renewable Energy	Pipeline Engineering	Risk Management	Subsea Engineering
Common modules					
Corrosion in the Offshore Environment	●	●	●	●	●
Offshore Inspection	●	●	●	●	●
Project Management	●	●	●	●	●
Safety, Risk and Reliability Offshore	●	●	●	●	●
Option modules					
Failure of Materials and Structures	●				
Finite Element Analysis and Materials Modelling					
Materials in the Offshore Environment	●		●		●
Offshore Pipeline Design and Installation			●		
Offshore Renewable Energy - Management		●			
Offshore Renewable Energy - Technology		●			
Reliability Engineering and Asset Risk Management				●	
Subsea Oil and Gas Exploitation				●	●

● = Compulsory module for specialisation identified above.

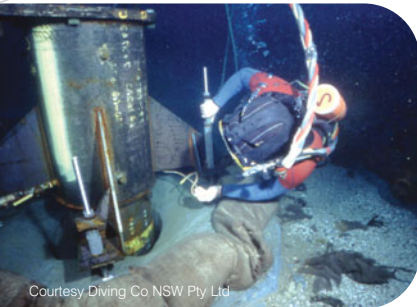
Course details

Duration: Full-time: 1 year.
Part-time: 2-3 years.

Start date: Full-time: October.
Part-time: Throughout the year.

Funding: Grants are available on a competitive basis for the 1 year full-time course from the Society for Underwater Technology. Other funding opportunities exist, such as School bursaries. For the majority of part-time students sponsorship is organised by their employers. For information on funding opportunities please visit: www.cranfield.ac.uk/sas/funding

Entry requirements: Candidates must possess, or be expected to achieve, a 1st or 2nd class UK honours degree or equivalent in a relevant engineering or science-based discipline. Other relevant qualifications together with considerable industrial experience may be considered.



Courtesy Diving Co NSW Pty Ltd



“The Mull of Galloway (group) project presented a real world challenge to the students from Cranfield University. They applied themselves well to the task proving to be both competent and effective across the full range of disciplines needed to assess a potential marine generation project. E.ON is keen to work with Cranfield again on future projects and wishes each of the students every success in their professional careers.”

Amaan Lafayette
Marine Development Manager at E.ON

Who should apply?

- Engineering and science graduates keen to pursue careers within the offshore sector
- Graduates currently working in the offshore and ocean-related industries keen to extend their qualifications
- Individuals with other qualifications who possess considerable relevant experience

Course overview

The course comprises eight one-week assessed modules, a group project and an individual project. The modules include lectures and tutorials, and are assessed through written examinations and assignments. These provide the ‘tools’ required for the group and individual projects. The three elements of the course are assessed as follows:

• Taught modules	40%
• Group project	20%
• Individual project	40%

For part-time students the group project may be replaced by an individual work-based assignment with their employer.

The modular format of the taught element also permits a high degree of flexibility of attendance at Cranfield for part-time students who may commence the course at any time during the year.

Group project

The industrially sponsored group project is an applied multi-disciplinary team-based activity. The project aims and objectives are given in relation to a topic of considerable interest within the industry. Students gain experience of group working in a simulated industrial environment and in-depth knowledge of a technical topic of interest to the sector.

Individual project

Students select the individual project in consultation with the Course Director. A number of projects each year will be supported by industry and may be undertaken within a company away from the Cranfield campus. Others will take advantage of the extensive research facilities at Cranfield. The research project effectively runs throughout the whole of the academic year with progress being reviewed by the student's academic (and industrial) supervisor on a regular basis.

Facilities

The Energy Technology Centre boasts state-of-the-art corrosion laboratories, diving tanks, autonomous and remotely operated vehicles for undersea applications, and a hyperbaric chamber for deep weld simulation.

Why Cranfield University

- Ranked first in the UK for staff to student ratios
- Excellent rating for teaching
- Exceptional facilities
- Courses designed to meet the training needs of industry with strong input from experts in their sector
- Wholly postgraduate with an international community and truly global reputation
- Focus on applied research and developing future managers, engineers, consultants, scientists and entrepreneurs.

Contact

For further information and an application form please contact:

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