

What is marine operation and maintenance engineering?

Marine operation and maintenance engineering covers important activities needed to ensure a well-functioning, safe and environmental friendly system. We focus on marine systems, such as ships, offshore installations, marine renewable energy production systems, fisheries and aquaculture.

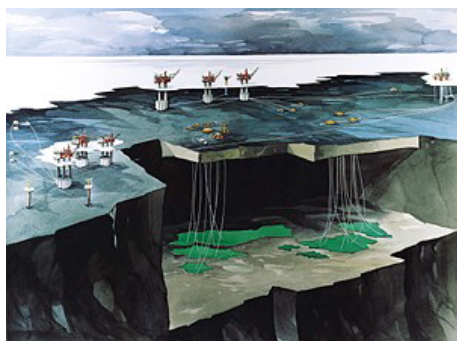


Photo: Statoil

Operation of a ship, an offshore wind farm, or an oil / gas installation requires extensive knowledge of the production processes and technical systems, including reliability, safety, maintenance, and operation management.

Planning and optimization of maintenance involves the development and use of mathematical models and operations research, but also the analysis of human and organizational factors.

Safety and reliability include the assessment of technical, human, environmental and organizational factors, which makes it very exciting to work in this area.

Master's Degree Programme

can be chosen:

- 1) as a 5-year master programme;
- 2) for those having completed a bachelor in engineering from a university / college in Norway, as a 2-year master programme;
- 3) for international students as a 2-year master programme.

Master courses:

TMR 4260 Safe operation and maintenance

TMR 4555 Operation and maintenance engineering - specialization course

PhD course:

System safety engineering and management

See <http://www.ntnu.edu/ross/courses> for more relevant courses.

See <http://www.ntnu.edu/studies> for more information about studying in Trondheim.

See <http://www.ntnu.edu/ivt/phd> for short information about PhD opportunities.

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Study program

Marine operation and maintenance engineering

Faculty of Engineering Science and Technology
Department of Marine Technology



NTNU – Trondheim
Norwegian University of
Science and Technology

What jobs are relevant?

- Shipping companies (inspection, maintenance services, technical operations)
- Oil / gas companies (technical department for maintenance, platform operation)
- Shipbuilding and engineering companies
- Maintenance and service contractors
- Consulting
- Classification Companies
- Research institutes and research departments in large companies
- Control authorities (Maritime Authority, Petroleum Safety Authority)
- Equipment suppliers
- Technical operation and maintenance jobs in land-based industry and transport

Oil and gas industry

In the oil and gas industry, there are exciting work related to operation, maintenance, and modifications of offshore and onshore facilities. The consequences of insufficient maintenance and safety can be catastrophic, both in terms of loss of human lives, environmental impact, and damage to assets; the Deepwater Horizon accident is one example.

Many oil and gas installations on the Norwegian continental shelf are aging; increasing the need for maintenance. It is a challenge to analyze and determine the need for maintenance to ensure safety.

As the oil and gas industry is moving into deeper water, subsea solutions are becoming more common. Important equipment placed on the seabed makes great demands on the operation, in terms of maintenance of the equipment and ensuring control over the technical condition. Use of intervention vessels is very expensive and it is very complicated to perform maintenance when the water depth is, for example 1000 meters or more.

Maritime industry

Ships are operated in either "Ship Management" companies which are specialized in the operation of ships, or as an integral part of a shipping company.

Typical work in this context is within the technical department or as an inspector. The inspector is usually responsible for 3-4 ships, visiting the ships regularly and making technical management plans with focus on safety, economy, and efficiency.

See <http://www.rederi.no> for more information on the Norwegian maritime industry.

Consultancy services

Consultancy services request candidates with technical background. As a consultant, you get a broad experience from a variety of businesses and industries. Typical tasks for a consultant include RCM analysis, availability analysis, risk analysis, and assistance in strategic planning and performance management.



Photo: DONG Energy A/S



Photo: Dag Myrestrand / Statoil



Photo: Anne-Mette Fjærli / Statoil



Photo: Øyvind Hagen / Statoil