



University of
Strathclyde
Glasgow



Marine Engineering

MSc



WHY STUDY THIS PROGRAMME AT STRATHCLYDE?

- Accreditation by the Royal Institution of Naval Architects and the Institute of Marine Engineering, Science and Technology
- Enhance your teamworking and communication skills with group project work

COURSE STRUCTURE

The programme has three components:

- Instructional Modules
- Group Project
- Individual Project (MSc only)

Compulsory Classes

- Advanced Marine Engineering
- Marine Engineering Simulation and Modelling
- Maritime Safety and Risk
- Onboard Energy Management and Marine Environment
- Systems Availability and Maintenance
- Shipping Economics and Market Sector Analysis

Optional Classes

- Project Management
- Risk Analysis and Management
- Offshore Structural Integrity
- Autonomous Marine Vehicles and Digital Twin

COURSE DURATION

MSc: 12 months full-time

ENTRY REQUIREMENTS

MSc: BEng with first- or good second-class Honours, or equivalent overseas qualification.

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 University of Strathclyde Glasgow G1 1XQ
[www.strath.ac.uk/engineering/](http://www.strath.ac.uk/engineering/navalarchitectureoceanmarineengineering/)
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A large white offshore wind turbine is being installed by a white and red ship. A yellow crane is lifting a large white blade into place. The ship is on the water, and the sky is blue.

Ship and Offshore Structures

MSc



WHY STUDY THIS PROGRAMME AT STRATHCLYDE?

- Accreditation by the Royal Institution of Naval Architects and the Institute of Marine Engineering, Science and Technology
- Learn about the factors influencing the dynamic behaviour of offshore installations

COURSE STRUCTURE

The programme has three components:

- Instructional Modules
- Group Project
- Individual Project (MSc only)

Compulsory Classes

- Offshore Structural Integrity
- Dynamics of Fixed and Floating Offshore Structures
- Finite Element Analysis of Floating Structures
- Advanced Marine Structures
- Systems Availability and Maintenance
- Theory and Practice of Marine CFD
- Design and Construction of FPSO's

Optional Modules

- Risk and Reliability Engineering
- Renewable Marine Energy Systems

COURSE DURATION

MSc: 12 months full-time

ENTRY REQUIREMENTS

MSc: BEng with first- or good second-class Honours, or equivalent overseas qualification.

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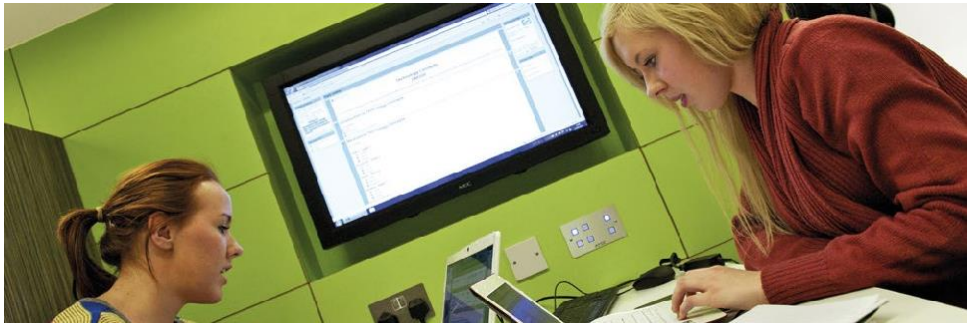
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Ship and Offshore Technology

MSc (two-year programme with
Hamburg University of Technology)



WHY STUDY THIS PROGRAMME AT STRATHCLYDE?

- Gain an award in the name of two universities
- Complete an intensive German language course
- All modules taught in English
- Accreditation by the Royal Institution of Naval Architects and the Institute of Marine Engineering, Science and Technology

COURSE STRUCTURE

The course is offered jointly between the University of Strathclyde and Hamburg University of Technology, Germany; the awards are made in the name of both universities.

Year 1 (University of Strathclyde)

- Offshore Structural Integrity
- Marine Pipelines
- Risk and Reliability Engineering
- Maritime Safety and Risk
- Design and Construction of Floating, Production, Storage and Offloading Vessels
- Theory and Practice of Marine CFD
- Dynamics of Fixed and Floating Offshore Structures
- Finite Element Analysis of Floating Structures
- Group Project
- Research Project

Year 2 (Hamburg University of Technology)

- Ship Design
- Ship Vibration
- Structural Analysis of Ships & Offshore Structures
- Master Thesis

Optional Classes

- Arctic Technology
- Innovative CFD Approaches
- Non-Linear Structural Analysis
- Fatigue Strength of Ships & Offshore Structures
- Manoeuvrability & Shallow Water Ship Hydrodynamics
- Seakeeping of Ships & Lab on NA

COURSE DURATION

24 months full-time

ENTRY REQUIREMENTS

BEng with first-class Honours, or equivalent overseas qualification, in a marine or marine-related engineering subject. Knowledge of structural mechanics, hydrostatics, fluid dynamics, ship resistance and propulsion and ship design is essential.

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Subsea and Pipeline Engineering

MSc



WHY STUDY THIS PROGRAMME AT STRATHCLYDE?

- Accreditation by the Royal Institution of Naval Architects and the Institute of Marine Engineering, Science and Technology
- Gain advanced knowledge of subsea systems
- Benefit from excellent teaching facilities

COURSE STRUCTURE

The programme has three components:

- Instructional Modules
- Group Project
- Individual Project (MSc only)

Compulsory Classes

- Marine Pipeline Integrity
- Design and Construction of FPSO's
- Maritime Safety and Risk
- Finite Element Analysis of Floating Structures
- Risk and Reliability Engineering
- Marine Pipelines
- Dynamics of Fixed and Floating Offshore Structures

Optional Modules

- Advanced Marine Structures
- Theory and Practice of Marine CFD

COURSE DURATION

MSc: 12 months full-time

ENTRY REQUIREMENTS

MSc: BEng with first- or good second-class Honours, or equivalent overseas qualification.

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Technical Ship Management

MSc



WHY STUDY THIS PROGRAMME AT STRATHCLYDE?

- Develop skills essential for efficient management of ships and fleets
- Access to state-of-the-art facilities and labs

COURSE STRUCTURE

The programme has three components:

- Instructional Modules
- Group Project
- Individual Project (MSc only)

Compulsory Classes

- Project Management
- Systems Availability and Maintenance
- Shipping Economics and Market Sector Analysis
- Maritime Safety and Risk
- Maritime Regulatory Framework
- Onboard Energy Management and Marine Environment Protection

Electives:

- Financial Engineering
- Ship Powering in Service
- Autonomous Marine Vehicles and Digital Twin.

COURSE DURATION

MSc: 12 months full-time

ENTRY REQUIREMENTS

MSc: BEng with first- or good second-class Honours, or equivalent overseas qualification.

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Sustainable Engineering: Marine Technology

MSc



WHY STUDY THIS PROGRAMME AT STRATHCLYDE?

- Gain practical knowledge of sustainable marine technologies
- Benefit from guest lectures by industry leaders

COURSE STRUCTURE

The programme has three components:

- Instructional Modules
- Group Project
- Individual Project (MSc only)

Compulsory Classes

- Sustainability
- Sustainable Engineering Group Project
- Maritime Safety and Risk
- Autonomous Marine Vehicles and Digital Twin
- Design and Construction of FPSOs
- Advanced Marine Structures
- Onboard Energy Management and Marine Environment Protection

Optional Modules:

- Design Management
- Project Management
- Risk Analysis and Management
- Environmental Impact Assessment
- Computational Free-Surface Hydrodynamics

COURSE DURATION

MSc: 12 months full-time

ENTRY REQUIREMENTS

MSc: BEng with first- or good second-class Honours, or equivalent overseas qualification.

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University of
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Advanced Naval Architecture

MSc



WHY STUDY THIS PROGRAMME AT STRATHCLYDE?

- Gain further practical knowledge in the field of Naval Architecture
- Benefit from guest lectures by industry leaders

COURSE STRUCTURE

The programme has three components:

- Instructional Modules
- Group Project
- Individual Project (MSc only)

Compulsory Classes

- Ship Operability and Control
- Ship Powering in Service
- Group Design Project
- Advanced Marine Design
- Maritime Safety and Risk
- Advanced Marine Structures
- Theory and Practice of Marine CFD
- Maritime Regulatory Framework

Optional Modules:

- Offshore Structural Integrity
- Shipping Economics and Market Sector Analysis
- Autonomous Marine Vehicles and Digital Twin

COURSE DURATION

MSc: 12 months full-time

ENTRY REQUIREMENTS

MSc: BEng with first- or good second-class Honours, or equivalent overseas qualification. Applicants with other qualifications will be considered on an individual basis

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Sustainable Engineering Programme: Offshore Renewable Energy

MSc

WHY STUDY THIS PROGRAMME AT STRATHCLYDE?

- Cross-disciplinary programme with input from industry
- Satisfy key requirements to attain Chartered Engineer status
- Develop sought-after understanding of sustainable approaches and practices

COURSE STRUCTURE

- Instructional classes (including a Sustainability class taken by all students)
- Group project (on a topic related to environmental, social, or economic sustainability)
- Individual project

Step One: Select Your Specialist Theme

- Advanced Construction Technology and Building Information Management
- Architecture and Ecology (Glasgow/ Arizona)
- Offshore Renewable Energy
- Renewable Energy Systems and the Environment

Step Two: Select Generic Classes

- Design Management
- Financial Engineering
- Project Management
- Risk Management

You will take at least two generic classes which meet employers' requirements for comprehensive engineering skills and satisfy key requirements to attain Chartered Engineer status.

Step Three: Select Specialist Modules

Offshore Renewable Energy Modules:

- Energy Resources and Policy
- Electrical Power Systems
- Renewable Marine Energy Systems
- Finite Element Analysis of Floating Structures
- Physical Testing of Offshore Renewable Energy Devices

Step Four: Complete a Group Project

You work within a group of students from different specialist themes to produce sustainable solutions for real-life industry problems. Site visits, field trips and regular progress reports to industry partners are an integral part of the process.

You will develop valued skills in team-working, problem-solving, report writing and presentation.

Successful completion of eight instructional classes and a group project leads to the award of a Postgraduate Diploma.

Step Five: Complete an Individual Project

MSc students study a selected topic in depth and submit a thesis. Substantial industry input in the form of project ideas brings together engineering graduates and business representatives.

Successful completion of eight instructional modules, a group project and an individual project leads to the award of an MSc.

COURSE DURATION

MSc: 12 months full-time; 24 months part-time (minimum)

ENTRY REQUIREMENTS

First degree or other qualification equivalent to an Honours degree in a relevant engineering, technology or science discipline. Entry may be possible with other qualifications provided there is evidence of relevant experience and of the capacity for postgraduate study.

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Marine Engineering with Specialisation in Autonomous Marine Vehicles

MSc

WHY THIS COURSE?

Industry 4.0 (Fourth Industrial Revolution) is the confluence of cyber-physical systems that are reshaping most sectors including the maritime sector. Autonomous technology is poised to transform the sector. Crewless vessels are now under development. It is already possible to explore the most extreme oceanic environments using autonomous and robotic systems. It is time for the maritime industry to understand how autonomous systems will shape the sector and how best to exploit them.

This new programme aims to address an identified market need for a postgraduate qualification that is relevant to the maritime industry and which develops skills and knowledge in autonomy and IT technologies used in the sector.

This course is designed for graduates in naval architecture, mechanical engineering, marine engineering and related disciplines who want to gain advanced knowledge of autonomous marine technology.

COURSE STRUCTURE

This programme has three components

- Instructional Modules
- Group Project
- Individual Project

COMPULSORY COURSES

- Intelligent Sensing, Reasoning Through Machine Learning
- Neural Networks and Deep Learning
- Autonomous Marine Vehicles and Digital Twin
- System Availability and Maintenance
- Marine Engineering Simulation and Modelling
- Ship Operability and Control
- Maritime Regulatory Framework

OPTIONAL MODULES

- Shipping Economics and Market Sector Analysis
- Maritime Safety and Risk

COURSE DURATION

12 months full time

ENTRY REQUIREMENTS

MSc: BEng with First, or Second Class (Upper Division) Honours or equivalent overseas qualification.

CAREERS

We believe that there will be huge home/EU and overseas demand for these graduates. Job titles for future graduates of this postgraduate programme include but not limited to:

- Graduate/Senior naval architect
- Marine surveyor
- Academic/Researcher
- Design engineer
- Fleet manager
- Consultant

Our graduates should be able to work at:

- Classification societies
- Ministry of Defence
- Shipping companies
- Research centres, experimental facilities and universities
- Naval architecture companies

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Offshore Wind Energy

MSc





WITH THIS 12 MONTHS PROGRAMME, YOU WILL GAIN INDUSTRIALLY RELEVANT KNOWLEDGE IN:

- Offshore wind, wave, and current modelling
- Aerodynamic and hydrodynamic loads
- Structural analysis and integrity assessment
- Generators, power converters, and control systems
- Risk and reliability engineering
- Offshore wind farm Economics, Operation & Maintenance

WHY THIS PROGRAMME AT STRATHCLYDE

- With almost 20 GW of offshore wind capacity worldwide, and projected to increase fifteen-fold by 2040, the offshore wind energy market is booming, and it urgently needs qualified people to further succeed in being the leading sustainable energy source.
- The University of Strathclyde offers a uniquely well-rounded, offshore wind-focused MSc, having internationally leading expertise and track record in both wind turbines offshore engineering and electric and electronic engineering, unparalleled in the world.
- The group project will be assessed by a panel of industry experts.

COURSE STRUCTURE

This programme has three components

- Instructional Modules
- Group Project
- Individual Project

COMPULSORY COURSES

- Wind Turbine Technology
- Offshore Wind Turbines Dynamics Modelling
- Offshore Structural Integrity
- Principles of Generator Modelling and Control
- Risk and Reliability Engineering
- Offshore Wind Farms Operation & Maintenance, and Economics

COURSE DURATION

12 months full time

ENTRY REQUIREMENTS

A first or good second-class UK Honours degree or equivalent overseas qualification in a relevant engineering or technical subject.

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“The MSc in Offshore Wind Energy will provide the students with the industrially relevant skills necessary to work in this field. BPP-Tech would look to employ 2-4 such graduates in each year.”

Minoo Patel, Founder and Director BPP-Tech
<https://www.bpp-tech.com/>



“The proposed MSc in Offshore Wind Energy has a structure and content that will give the necessary formation and skills to the students allowing them to work in the industry.”

Claudio Bittencourt-Ferreira,
 Senior Principal Surveyor, DNVGL UK

