



University of
Strathclyde
Glasgow

A photograph of two students, a woman on the left and a man on the right, both wearing white hard hats and high-visibility yellow safety vests over white lab coats. They are standing on a ship's deck, looking at a blue clipboard held by the woman. In the background, a large grey naval ship is docked at a pier. The scene is set outdoors with a cloudy sky and water.

Naval Architecture and Marine Engineering

BEng JH65/MEng HJ56

OVERVIEW

This degree aims to develop engineers capable of dealing with engineering challenges on a wide range of marine vehicles, with additional skills and understanding in the impact and importance of Marine Engineering on their successful design, construction, repair, and maintenance.

In addition to core Naval Architecture subjects, you will study a range of specialised Marine Engineering subjects such as control theory and practice, electrical systems, design of marine engines (diesel, diesel-electric and gas turbine), propeller and shafting systems, system design and simulation, green technology and fuel cell technology.

PROGRAMME STRUCTURE

Modules

Year 1 Engineering Mechanics 1 (20), Introduction to Naval Architecture and Marine Engineering (20), Analysis Tools for Marine Design (20), Engineering Mathematics (40), Elective classes (20)

Year 2 Hydrostatics and Stability of Marine Vehicles (20), Marine Engineering Fundamentals (20), Principles of Marine Design and Production (20), Analysis and Design of Marine Structures 1 (20), Engineering Applications for Naval Architects and Marine Engineers (20), Engineering Mathematics 3 (20)

Year 3 Professional Development and Marine Business (20), Marine Design (20), Hydrodynamics, Resistance and Propulsion (20), Marine Engineering Systems and Control (20), Analysis and Design of Marine Structures 2 (20), The Marine Environment (10), Principles and Application of Marine Machinery (10)

Year 4 Seakeeping and Manoeuvring (20), Theory and Practice of Marine CFD (10), Finite Element Analysis of Marine Structures (10) Marine Power and Electrical Systems (20), Marine Refrigeration and Air Conditioning (10), Marine Transmission and Propulsion Systems (10), Marine Engineering Project (40)

Year 5 (MEng) Group Design Project (40), Advanced Marine Design (10), Waterborne Transportation Systems (10), The Marine Regulatory Framework (10), On-board Energy Management and Environment Protection (10), Advanced Marine Engineering (10), Maritime Safety and Risk (10)

Optional Modules (20 credits chosen)

Renewable Marine Energy Systems (10), Marine Engineering Simulation & Modelling (10), Systems Availability and Maintenance (10)

UNDERGRADUATE ENTRY REQUIREMENTS

Highers

BEng: A A A B or A A B B B including Maths AND Physics and/or Engineering Science AB/BA.

MEng: A A A A or A A A B B including Maths (A) Physics (B) and/or Engineering Science (B).

We welcome a combination of Highers and Advanced Highers. Advanced Higher Maths is recommended.

Second year entry or exemption from some classes and exams with Advanced Higher grades similar to A Levels (see below).

A Levels

BEng

Year 2 entry – A A A -A B B including Maths and Physics

Year 1 entry – A B B -B B B including Maths and Physics

MEng

Year 2 entry – A A A -A A B including Maths and Physics.

Year 1 entry – A B B -B B B including Maths and Physics.

ENGLISH LANGUAGE REQUIREMENTS

If English is not your first language you will be required to prove that you have sufficient fluency in English. Our standard requirements are:

IELTS at 6.0 (with no individual element below 5.5).

TOEFL: 72-79 overall, with the following minimum scores in each component:

- Listening: 17
- Reading: 18
- Speaking: 20
- Writing: 19

Students who obtained their entry qualifications taught in English and those from certain countries may be exempt from this requirement. Applicants who have marginally lower scores of the above tests may be required to attend one or more modules of the pre-session English course offered by the University of Strathclyde's English Language Teaching Division <https://www.strath.ac.uk/studywithus/englishlanguage/teaching/>

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Naval Architecture and Ocean Engineering

BEng H512/MEng H513

OVERVIEW

Ocean Engineering deals with the technical aspects of fixed and floating marine structures and systems related to harnessing ocean resources.

These include offshore oil and gas and the rapidly expanding area of ocean renewable energy, as well as other ocean resource activities such as subsea mining and aquaculture. The degree aims to develop engineers capable of dealing with engineering challenges on a wide range of marine vehicles from tankers, bulk carriers, container ships and giant cruise liners to tidal current turbines and oil/gas platforms.

In addition to core Naval Architecture subjects, you will study a range of specialised Ocean Engineering subjects and subjects related to the design of novel ship and offshore structures such as risk management and reliability analysis, station-keeping and control and sub-sea engineering.

PROGRAMME STRUCTURE

Modules

Year 1 Engineering Mechanics 1 (20), Introduction to Naval Architecture and Marine Engineering (20), Analysis Tools for Marine Design (20), Engineering Mathematics (40), Elective classes (20)

Year 2 Hydrostatics and Stability of Marine Vehicles (20), Marine Engineering Fundamentals (20), Principles of Marine Design and Production (20), Analysis and Design of Marine Structures 1 (20), Engineering Applications for Naval Architects and Marine Engineers (20), Engineering Mathematics 3 (20)

Year 3 Professional Development and Marine Business (20), Marine Design (20), Hydrodynamics, Resistance and Propulsion (20), Marine Engineering Systems and Control (20), Analysis and Design of Marine Structures 2 (20), The Marine Environment (10), Offshore Oil and Gas Production Systems (10)

Year 4 Seakeeping and Manoeuvring (20), Theory and Practice of Marine CFD (10), Finite Element Analysis of Marine Structures (10), Ship Structural Dynamics (10), Structural Reliability (10), Dynamics of Offshore Structures (20), Ocean Engineering Project (40)

Year 5 (MEng) Group Design Project (40), Advanced Marine Design (10), Waterborne Transportation Systems (10), The Marine Regulatory Framework (10), Maritime Safety and Risk (10), Risers and Mooring Lines (10), Design and Construction of FPSOs (10)

Optional Modules (20 credits chosen)

Marine Pipeline Integrity (10), Renewable Marine Energy Systems (10), Systems Availability and Maintenance (10)

UNDERGRADUATE ENTRY REQUIREMENTS

Highers

BEng: AAB or AABBB including Maths AND Physics and/or Engineering Science AB/BA.

MEng: AAAA or AAABB including Maths (A) Physics (B) and/or Engineering Science (B).

We welcome a combination of Highers and Advanced Highers. Advanced Higher Maths is recommended.

Second year entry or exemption from some classes and exams with Advanced Higher grades similar to A Levels (see below).

A Levels

BEng

Year 2 entry – AAA-ABB including Maths and Physics

Year 1 entry – ABB-BBB including Maths and Physics

MEng

Year 2 entry – AAA-AAB including Maths and Physics.

Year 1 entry – ABB-BBB including Maths and Physics.

ENGLISH LANGUAGE REQUIREMENTS

If English is not your first language you will be required to prove that you have sufficient fluency in English. Our standard requirements are:

IELTS at 6.0 (with no individual element below 5.5).
TOEFL: 72-79 overall, with the following minimum scores in each component:

- Listening: 17
- Reading: 18
- Speaking: 20
- Writing: 19

Students who obtained their entry qualifications taught in English and those from certain countries may be exempt from this requirement. Applicants who have marginally lower scores of the above tests may be required to attend one or more modules of the pre-session English course offered by the University of Strathclyde's English Language Teaching Division <https://www.strath.ac.uk/studywithus/englishlanguage/teaching/>

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Naval Architecture with High Performance Marine Vehicles

BEng H520/MEng H521

OVERVIEW

High Performance Marine Vehicles have developed dramatically in recent years. Lighter, faster, stronger, greener and safer vessels are being designed and built using advanced materials and technology combined with creative design engineering.

This degree aims to create designers with all the core skills of ship design, construction, operation, and maintenance, along with a particular specialisation in the creative design and engineering of leisure and commercial vessels, ranging from state-of-the-art yachts to the new ultra efficient generation of container ships.

PROGRAMME STRUCTURE

Modules

Year 1 Engineering Mechanics 1 (20), Introduction to Naval Architecture and Marine Engineering (20), Analysis Tools for Marine Design (20), Engineering Mathematics (40), Elective classes (20)

Year 2 Hydrostatics and Stability of Marine Vehicles (20), Marine Engineering Fundamentals (20), Principles of Marine Design and Production (20), Analysis and Design of Marine Structures 1 (20), Engineering Applications for Naval Architects and Marine Engineers (20), Engineering Mathematics 3 (20)

Year 3 Professional Development and Marine Business (20), Marine Design (20), Hydrodynamics, Resistance and Propulsion (20), Marine Engineering Systems and Control (20), Analysis and Design of Marine Structures 2 (20), The Marine Environment (10), Yacht and Powercraft Design (10)

Year 4 Seakeeping and Manoeuvring (20), Theory and Practice of Marine CFD (10), Finite Element Analysis of Marine Structures (10), High Performance Marine Structures (20), High Performance Sailing Yachts (10), High Speed Ships (10), High Performance Marine Vehicles Project (40)

Year 5 (MEng) Group Design Project (40), Advanced Marine Design (10), Waterborne Transportation Systems (10), The Marine Regulatory Framework (10), Maritime Safety and Risk (10), Ship Operability and Control (10), Ship Powering in Service (10)

Optional Modules (20 credits chosen)

Renewable Marine Energy Systems (10), Computational Free Surface Hydrodynamics (10), Systems Availability and Maintenance (10)

UNDERGRADUATE ENTRY REQUIREMENTS

Highers

BEng: AAB or AABBB including Maths AND Physics and/or Engineering Science AB/BA.

MEng: AAAA or AAABB including Maths (A) Physics (B) and/or Engineering Science (B).

We welcome a combination of Highers and Advanced Highers. Advanced Higher Maths is recommended.

Second year entry or exemption from some classes and exams with Advanced Higher grades similar to A Levels (see below).

A Levels

BEng

Year 2 entry – AAA-ABB including Maths and Physics

Year 1 entry – ABB-BBB including Maths and Physics

MEng

Year 2 entry – AAA-AAB including Maths and Physics.

Year 1 entry – ABB-BBB including Maths and Physics.

ENGLISH LANGUAGE REQUIREMENTS

If English is not your first language you will be required to prove that you have sufficient fluency in English. Our standard requirements are:

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