PROGRAMME SPECIFICATION	

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	MEng (Hons)
4	**Programme Title**	Marine Technology
5	**UCAS/Programme Code**	Marine Engineering – H501 Marine Engineering with Placement Year 1162U Marine Engineering Science 1653U (exit award) Naval Architecture – H503 Naval Architecture with Placement Year 1164U Naval Architecture Science 1654U (exit award) Naval Architecture with specialism in Offshore Engineering 1638U Naval Architecture with specialism in Small Craft Technology 1640U Offshore Engineering – H356 Offshore Engineering with Placement Year 1161U Small Craft Technology – H524 Small Craft Technology with Placement Year 1167U Offshore Engineering Science 1655U (exit award) Small Craft Technology Science 1656U (exit award)
6	**Programme Accreditation**	RINA: H501, H503, 1638U, 1640U, H356, H524, IMarEST: H501, H503, 1640U, H356, H524,
7	**QAA Subject Benchmark(s)**	Engineering MEng, Degrees
8	**FHEQ Level**	7
9	**Last updated**	May 2024

10	**Programme Aims**
1.	The overall aims of the programme are for graduates to gain knowledge skills and understanding within one or more specific subject areas of Naval Architecture and Marine Engineering.
2.	A comprehensive understanding of techniques applicable to their own advanced scholarship and originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline.
3.	To couple a sound theoretical grasp of the subject with practical application, awareness of responsibilities to society and the environment, the requirement for flexibility and the ability to assemble information from a variety of sources; the

ability to prioritise work and meet deadlines; the ability to work alone and also within teams.

4. To prepare a student for one of four well recognised sectors of the marine industries worldwide, namely Marine Engineering, Naval Architecture, Offshore Renewables and Subsea Engineering.
5. Gain an internationally recognised qualification which meets the requirements of the Framework for Higher Education Qualifications at Integrated Masters Level 7 with particular reference to the QAA Subject Benchmark Statement for Engineering (including Annex MEng degrees) and to the Engineering Council (UK) UKSpec.

For students on the Placement Year programme:

6. Provide students with the experience of seeking and securing a position with an employer
7. Facilitate independent self-management and pro-active interaction in a non-university setting
8. Provide a period of practical work experience that will benefit current academic study and longer term career plans
9. Enable students to ethically apply their knowledge and skills in their work place, reflect upon their development and effectively evidence and articulate their learning in relevant future settings.

11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have references to the benchmark statements for Engineering.

1. To equip students having diverse backgrounds with knowledge skills and understanding in their chosen programme that will enable them to be able to deal with complex issues both systematically and creatively, to make sound judgements in the absence of complete data, and to communicate their conclusions clearly to specialist and non-specialist audiences.
2. To ensure students receive the core material recommended by the accrediting professional institutions (The Institute of Marine Engineering, Science and Technology and the Royal Institution of Naval Architects).
3. To enable students to enhance their projects by facilitating the School's exceptional research base to inform teaching and lecturing activities and to demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional equivalent level.
4. To equip students with appropriate transferable practical skills in computing and information technology, data collection and analysis, problem formulation and solving and communication skills, (both oral and written), and for effective group participation including independent action, accepting responsibilities, formulating ideas proactively, planning and developing strategies, implementing and executing agreed plans, leading and managing teams where required, evaluating achievement against specification and plan, and decision making.
5. To encourage students to develop awareness and responsible attitudes towards the needs of society and the environment in the application of their engineering knowledge, including a regard for safety appropriate to their profession.

6. To have a repertoire of skills to enable the acquisition, evaluation and interpretation of information.
7. To have the ability to communicate effectively, make presentations, work as a member of a team, manage their time, prioritise and manage their work effectively.
8. To instil in students an awareness of their professional responsibilities and the need for their own continuing professional development.
9. To contribute to the working environment within the School, such that students enjoy the University learning experience and wish to maintain contact with the School in its future activities, professionally as well as socially.

Knowledge and Understanding

On completing the programme students will have gained and be able to demonstrate:

A1. Comprehensive knowledge of mathematics and physics that are relevant to Naval Architecture and Marine Engineering.
A2. Detailed knowledge and comprehensive understanding of essential concepts, principles and theories in mathematics, physics and engineering relevant to Naval Architecture and Marine Engineering.
A3. Detailed understanding and critical awareness of technical literature to address complex problems.
A4. Understanding of integrated systems approaches and their application to solve complex engineering problems.
A5. Understanding of quality management systems in the context of complex Naval Architecture and Marine Engineering problems.
A6. Knowledge of business and management techniques in the context of Naval Architecture and Marine Engineering including production practise and the legislative framework for safety.

For students on the Placement Year programme:

A7. Apply personal and professional development strategies to prioritise, plan and manage their own skills development and learning
A8. Research, select and apply relevant knowledge aimed at enhancing their own skills and effectiveness in specific duties at their placement
A9. Demonstrate an understanding of a work environment, how it functions and their contribution to it
A10. Relate their work based learning to other areas of personal development, including academic performance.

Teaching and Learning Methods

- Acquisition of A1 and A2 is through a combination of lectures, tutorials, example classes, laboratory experiments, coursework and projects in Stages 1 and 2.

- Acquisition of A3 is through a combination of lectures, supervisions, coursework and projects in Stage 3.

- Acquisition of A4 is through a combination of lectures, laboratory experiments, coursework and projects in Stages 3 and 4.

- Acquisition of A5 is through lectures throughout the programme and coursework in Stages 3 and 4.

- Acquisition of A6 is through lectures associated with Stage 2 and 3 modules

- Acquisition of A7-10 is through the activities carried out throughout the placement year

Assessment Strategy

Testing the knowledge base is through a combination of unseen written examinations (1-4, 6) and assessed coursework (1-6) in the form of laboratory experiment write-ups (1, 2, 4), and project reports and presentations (2-6).

Intellectual Skills

A successful student will be able to:

B1. Formulate and analyse complex engineering problems, using first principles of mathematics and physics, to reach substantiated conclusions.

B2. Select and apply appropriate analytical techniques to model complex engineering problems in Naval Architecture and Marine Engineering, understanding the limitations of the methods.

B3. Select and critically evaluate technical literature and other information in addressing complex engineering problems in Naval Architecture and Marine Engineering.

B4. Be creative in the solution of problems and in the development of designs which address societal, business and user needs. Taking a holistic approach to solving problems and designing systems, applying professional judgments to balance risks, costs, benefits, safety, reliability, aesthetics and environmental impact.

B5. Apply a systems approach to solving complex engineering problems.

B6. Evaluate the environmental and societal impact of solutions to problems in Naval Architecture and Marine Engineering and minimise the adverse impacts.

B7. Plan, record and reflect on learning and development providing the basis for lifelong learning.

Teaching and Learning Methods

- Skills B1 and B2 are developed during laboratory experiments, coursework and projects as well as through lectures, tutorials, example classes, laboratory experiments, coursework and projects associated with Stages 2, 3 and 4 modules.

- Skills B3, B4 and B5 are developed through engineering applications and engineering design as well as research projects and dissertation modules which students study during Stages 2, 3 and 4.

- Skill B6 is developed through design and project work carried out during Stages 2, 3 and 4.

- Skill B7 is developed through individual logbooks in stages 1, 3 and the management report in stage 4.

Assessment Strategy

Analysis and problem solving skills are assessed through unseen written examinations and coursework.
Experimental, research and design skills are assessed through laboratory experiment write-ups, coursework reports and project reports, presentations and unseen written examinations.
Creative and design skills are assessed through coursework and unseen written examinations.

Practical Skills

On completing the programme students should be able to:

C1. Use laboratory equipment to safely execute experiments to investigate complex problems in Naval Architecture and Marine Engineering.

C2. Select and apply appropriate equipment, materials and engineering processes and recognise their limitations in the solution of complex problems in Naval Architecture and Marine Engineering.

C3. Work individually and as a member of a team or team leader and evaluate the effectiveness of own and team performance in addressing complex problems of Naval Architecture and Marine Engineering.

Teaching and Learning Methods

- Practical skills are developed through the teaching and learning programme outlined above.

- Practical experimental skills (C1 and C2) are developed through laboratory experiments, design and drawing coursework exercises and project work.

- Skill C3 is developed through group projects and design coursework.

Assessment Strategy

Practical skills are assessed through laboratory experiment write-ups, coursework reports, project reports and presentations.

Transferable/Key Skills

A successful student will be able to:

D1. Evaluate the environmental and societal issues that affect Naval Architecture and Marine Engineering and the issues associated with sustainable engineering solutions.

D2. Identify and analyse professional and ethical responsibilities of Naval Architects and Marine Engineers and make reasoned ethical choices based on professional codes of conduct.

D3. Use risk management processes to identify, evaluate and mitigate risks associated with an engineering project.

D4. Analyse security risks and take a holistic and proportionate approach to mitigation of the risk.

D5. Recognise the benefits, importance and responsibilities of engineers in supporting equality, diversity and inclusivity and adopt an inclusive approach to their own engineering practices.

D6. Apply business and management techniques relevant to Naval Architecture and Marine Engineering including the commercial context, project and change management and legal frameworks including intellectual property rights.

D7. Work individually and as a member of a team or the team leader in addressing complex problems of Naval Architecture and Marine Engineering, and evaluating the effectiveness of own and team performance.

D8. Communicate effectively through different media on complex engineering subjects, with both technical and non-technical audiences, and evaluating the effectiveness of methods used.

D9. Plan, record and reflect on self-learning and development as the basis for lifelong learning and continuing professional development.

For students on the Placement Year Programme:

D10. Reflect on and manage own learning and development within the workplace
D11. Use existing and new knowledge to enhance personal performance in a workplace environment, evaluate the impact and communicate this process
D12. Use graduate skills in a professional manner in a workplace environment, evaluate the impact and communicate the personal development that has taken place.

Teaching and Learning Methods

Transferable skills are developed through the teaching and learning programme outlined above.

- Skill D1 is taught through lectures and the design project in Stage 3 and then developed through the design and research project assessed work in stages 3 and 4.

- Skill D2 is taught through lectures and the design project in Stages 1 and 2 and then developed through written examination as well as design and project assessed work.

- Skills D3-6 are taught through lectures and training courses and then developed through examination and design and project assessed work.

- Skill D7 is developed through group project work and team management report in stage 4.

- Skill D8 is taught through lectures and the design project in Stage 3 and then developed through feedback on reports written and presentations made as part of coursework assignments in stages 3 and 4.

- Skill D9 is developed through individual logbooks in stages 1 and 3 as well and the management report in stage 4.

- Skills D10-12 are developed through the activities carried out throughout the placement year

Assessment Strategy

Skills D1, D2, D3 are assessed through examination as well as application in design or project work.
Skill D4 is assessed primarily through examinations.
Skill D5 is assessed through group project and design work.
Skill D6 is assessed through examination as well as group project work.
Skill D7 is assessed through logbooks and peer feedbacks
Skill D8 is assessed through feedback on written coursework and project work as well as feedback on oral presentations.
Skill D9 is assessed through individual logbooks
Skills D10-D12 are assessed as part of the personal impact and development report during the placement year

12 Programme Curriculum, Structure and Features

Basic structure of the programme

The normal Undergraduate year is approximately 30 weeks, arranged in three terms and currently divided into two Semesters. The course normally lasts four years, although it is possible to take a gap year or spend time abroad at an approved university.
Every Honours student studies 120 credits in each Stage (or year), resulting in MEng candidates completing 480 credits. Candidates must complete one Stage before proceeding to the next; the only part-time study is limited provision for the repetition of failed modules. All students follow the same programmes in Stages 1, 2 and 3. In the fourth year, students elect to follow a specialisation.

The programme is structured on a semester pattern. Students study modules comprising 120 credits in each of Stages 1, 2, 3 and 4. After successful completion of four years full-time study, students may receive a degree of Master of Engineering (MEng).

In addition there are the following exit points:

- Certificate of Higher education, following successful completion of Stage 1 ;
- Diploma of Higher education, following successful completion of Stage 2 ;
- Degree of Bachelor of Engineering following successful completion of Stage 3.

The duration of all the courses may be extended by one year through enrolment on the Engineering Foundation Year.

A University credit is the equivalent of 10 student study notional hours. Each module is a self-contained part of the programme of study and carries a credit rating

Students on the Placement Year programme will be on placement year between Stages 3 and 4 of their programme.

Key features of the programme (including what makes the programme distinctive)

Study undertaken at Masters level reflects research at the forefront of Engineering and, in particular, maritime, offshore and subsea engineering. You will have demonstrated originality in the application of knowledge, and you will understand how the boundaries of knowledge are advanced through research. You will be able to deal with complex issues both systematically and creatively, and show originality in tackling and solving problems, individually and as part of a team. You will have the qualities needed for employment in circumstances requiring sound judgement, personal responsibility and initiative, in complex and unpredictable professional environments.

Programme regulations (link to on-line version)

H501+

13 Support for Student Learning

Generic information regarding University provision is available at the following link.
Generic Information

14 Methods for evaluating and improving the quality and standards of teaching and learning

Generic information regarding University provision is available at the following link.
Generic Information

Accreditation reports
The programmes are accredited by:
Institute of Marine Engineering, Science and Technology (IMarEST)
Royal Institution of Naval Architects (RINA)

15 Regulation of assessment

Generic information regarding University provision is available at the following link.

Generic Information

In addition, information relating to the programme is provided in:

The University Prospectus: http://www.ncl.ac.uk/undergraduate/degrees/#subject
Degree Programme and University Regulations: http://www.ncl.ac.uk/regulations/docs/

Please note. This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if she/he takes full advantage of the learning opportunities provided.