PROGRAMME SPECIFICATION	

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	MEng (Hons)
4	**Programme Title**	Marine Technology with Honours in:
5	**UCAS/Programme Code**	H501 Marine Engineering H507 Marine Engineering 1685U Marine Engineering Science (exit award) 1162U Marine Engineering with Placement Year 1674U Marine Engineering with Placement Year (Year 4) Code TBC – Marine Engineering Science with placement year H503 Naval Architecture H509 Naval Architecture 1686U Naval Architecture Science (exit award) 1164U Naval Architecture with Placement Year 1676U Naval Architecture with Placement Year Code TBC – Naval Architecture Science with Placement Year (exit award) 1638U Naval Architecture with specialism in Offshore Engineering 1678U Naval Architecture with specialism in Offshore Engineering 1687U Naval Architecture Science with specialism in Offshore Engineering Code TBC – Naval Architecture with specialism in Offshore Engineering with Placement Year Code TBC – Naval Architecture Science with specialism in Offshore Engineering with Placement Year 1640U Naval Architecture with specialism in Small Craft Technology 1680U Naval Architecture with specialism in Small Craft Technology 1688U Naval Architecture Science with specialism in Small Craft Technology

		Code TBC – Naval Architecture with specialism in Small Craft Technology with Placement Year Code TBC – Naval Architecture Science with specialism in Small Craft Technology with Placement Year 1653U Marine Engineering Science (exit award) 1654U Naval Architecture Science (exit award)
6	**Programme Accreditation**	RINA, IMarEST
7	**QAA Subject Benchmark(s)**	Engineering MEng, Degrees
8	**FHEQ Level**	7
9	**Last updated**	May 2023

10 Programme Aims

1. To produce graduates who have developed well founded knowledge skills and understanding within one or more specific subject areas of Marine Technology.
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 Engineering and Small Craft Technology.
5. To provide a programme which meets the FHEQ at Masters level and which takes appropriate account of the subject benchmark statements in Engineering (E) document as referenced in (http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/Subject-benchmark-statement-Engineering-.aspx)

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. A comprehensive knowledge and understanding Mathematical models and Physics principles that are relevant to Marine Technology and an appreciation of their limitation (E).

A2. The comprehensive understanding of the fundamental concepts, principles and theories of Marine Technology (E).

A3. Extensive knowledge and understanding of business and management techniques that are relevant to marine technologists.

A4. Detailed knowledge and understanding of the essential facts, concepts, principles and theories relevant to the student's chosen area of specialisation within Marine Technology (E)

A5. The role of marine technologists in society and the constraints within which their engineering judgement will be exercised (E)
A6. The professional and ethical responsibilities of marine technologists (E)
A7. The environmental issues that affect Marine Technology and the issues associated with sustainable engineering solutions.
A8. Conceptual and detailed design appropriate to their area of Specialisation (E)
A9. Production practise including codes of practise, standards, design, the assessment of safety risks and the legislative framework for safety.

For students on the Placement Year programme:

A10. Apply personal and professional development strategies to prioritise, plan and manage their own skills development and learning
A11. Research, select and apply relevant knowledge aimed at enhancing their own skills and effectiveness in specific duties at their placement
A12. Demonstrate an understanding of a work environment, how it functions and their contribution to it
A13. Relate their work based learning to other areas of personal development, including academic performance.

Teaching and Learning Methods

- Acquisition of 1 and 2 is through a combination of lectures, tutorials, example classes, laboratory experiments, coursework and projects in Stages 1 and 2.
- Acquisition of 3 is through a combination of lectures, supervisions, coursework and projects in Stages 3 and 4.
- Acquisition of 4 is through a combination of lectures, laboratory experiments, coursework and projects in Stages 3 and 4.
- Acquisition of 5 and 6 is through lectures throughout the programme and coursework in Stage 3.
- Acquisition of 7 is through a combination of lectures, seminars, coursework and projects especially in Stages 3.
- Acquisition of 8 is through the Group Project in Stage 4, the design projects in Stages 3 and 4 and lectures and coursework in Stages 2 and 3.
- Acquisition of 9 is addressed in lectures throughout the course.

Assessment Strategy

Testing the knowledge base is through a combination of unseen written examinations (1-4, 9) and assessed coursework (1-9) in the form of laboratory experiment write-ups (1, 2, 4), examinations (8), coursework reports (3-9) and project reports and presentations (2, 3, 4, 7,8).

Intellectual Skills

A successful student will be able to:

B1. Plan and conduct a programme of investigative work and report the results by integrating presentational techniques for maximum impact
B2. Analyse and solve engineering problems by:
    - Using fundamental knowledge to investigate new and emerging technologies
    - Extracting from given data, that which is pertinent to an unfamiliar problem, using computer based engineering tools where appropriate

- Selecting appropriate data from a range of possible data sets and presenting them in alternative forms to create deeper understanding and/or greater impact (E)

B3. Generate an innovative design for systems, components or processes to fulfil new needs (E)

B4. Be creative in the solution of problems and in the development of design by:

- Applying engineering techniques taking account of a range of commercial and industrial constraints
- Researching and using new methods required for novel situations and adapting to specific purposes if necessary
- Recognising the capabilities and limitation of computer based methods for engineering problem solving, with awareness of the future developments of IT tools
- Learning new theories, concepts, methods etc. in an unfamiliar situation outside the discipline area (E)

B5. Evaluate designs and make improvements (E)

B6. Integrate and evaluate information and data from a variety of sources (E)

B7. Take a holistic approach to solving problems and designing systems, applying professional judgements to balance risks, costs, benefits, safety, reliability, aesthetics and environmental impact (E).

Teaching and Learning Methods

Intellectual skills are developed through the teaching and learning programme outlined above (and in section 11).

Analysis and problem solving skills are further developed through example, classes, tutorials, coursework and project work.

Experimental, research and design skills are further developed through coursework activities, laboratory experiments, research and design projects. Individual feedback is given to students on all work produced.

Creative and design skills are developed through group design and project work.

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 projects 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. Execute safely a series of experiments (E);

C2. Use laboratory equipment to generate data (E);

C3. Analyse experimental or computational results and determine their strength and validity (E);

C4. Prepare technical drawings;

C5. Prepare technical reports;

C6. Give technical presentations;

C7. Use the scientific literature effectively;

C8. Take notes effectively;

C9. Use computational tools and packages and have:

- a comprehensive knowledge and understanding of the role and limitations of ITC;
- an awareness of development technologies in ITC;

- an understanding of the capabilities of computer based models for solving problems in engineering;
- the ability to assess the limitations of particular cases (E);

C10. Produce a conceptual or elemental design to a specification;
C11. Search for information to develop concepts.

Teaching and Learning Methods

Practical skills are developed through the teaching and learning programme outlined above (and in section 11).
Practical experimental skills (1-3) are developed through laboratory experiments and project work.
Skill 4 is taught through lectures and developed through drawing coursework exercises.
Skill 5 and 6 are taught through classes in Stage 1 and then developed through feedback on reports written and presentations made as part of coursework assignments.
Skill 7 is developed through research project work.
Skill 8 is taught in Stage 1 and practised throughout the programme.
Skill 9 is taught and developed through coursework exercises and project work.
Skill 10 is taught and developed through the design project in Stage 3 and lectures and coursework in Stages 2 and 3.
Skill 11 is practised through the group design project and 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. Communicate effectively (in writing, verbally, group presentations and through drawings) by integrating presentational techniques and the information to be presented for maximum impact (E)
D2. Apply mathematical skills (algebra, geometry, modelling, analysis)
D3. Work as a member of a team with strong capabilities for independent action, accepting responsibility, formulating ideas proactively, planning and development strategies, implementing and executing agreed plans, leading and managing teams where required, evaluating achievement against specification and plan, and decision making (E)
D4. Use Information and Communications Technology (E)
D5. Manage resources and time (E)
D6. Learn independently in familiar and unfamiliar situations with open-mindedness
D7. Learn effectively for the purpose of continuing professional development and in a wider context throughout their career (E)

For students on the Placement Year Programme:

D8. Reflect on and manage own learning and development within the workplace
D9. Use existing and new knowledge to enhance personal performance in a workplace environment, evaluate the impact and communicate this process

D10. 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 (and in section 11).
Skill 1 is taught through classes and the design project in Stage 3 and then developed through feedback on reports written and presentations made as part of coursework assignments.
Skill 2 is taught through lectures and tutorials and developed throughout the course.
Skill 3 is developed through group project work.
Skill 4 is developed in many modules and is a skill developed as essential part of project work and report writing.
Skill 5 is developed through laboratory experiments, projects and other coursework activities and individual learning.
Skill 6 is introduced in Stage 1 and developed throughout the course with particular emphasis in Stage 3 on the investigative project.
Skill 7 although not specifically taught, the other skills are nurtured and developed throughout the course.

Assessment Strategy

Skill 1 is assessed through coursework reports, presentations and oral examinations.
Skill 2 is assessed primarily through examinations.
Skill 4 is assessed through examinations and through research project work.
The other skills are not formally assessed.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

The normal Undergraduate year is approximately 31 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 and 2.

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 Careers Placement Year programme will take their placement in the penultimate year of studies

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

Much of the study undertaken at Masters level reflects research at the forefront of Engineering and, in particular, Ship Science. 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)

H501-1654U: Marine MEng regs 23-24 Continuing Students.pdf (ncl.ac.uk)
H507-1688U: NEW Entry Marine MEng regs 23-24.pdf (ncl.ac.uk)

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.

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