

## PROGRAMME SPECIFICATION



1	<b>Awarding Institution</b>	Newcastle University
2	<b>Teaching Institution</b>	Newcastle University
3	<b>Final Award</b>	MSc
4	<b>Programme Title</b>	Marine Engineering
5	<b>UCAS/Programme Code</b>	5068
6	<b>Programme Accreditation</b>	Not Applicable
7	<b>QAA Subject Benchmark(s)</b>	Not Applicable
8	<b>FHEQ Level</b>	M
9	<b>Date written/revised</b>	30.09.2007

### 10 Programme Aims

1 The overall aims of the multi-disciplinary programme are to produce graduates who have developed well founded knowledge, skills and understanding within one or more specific subject areas of marine technology in its widest sense. The coupling of a sound theoretical grasp of the subject with practical application, awareness of responsibilities to society and the environment, and the requirement for flexibility, are regarded as essential to the process of becoming a professional marine technologist.

Specifically, the programme aims:

- To equip students having diverse backgrounds with knowledge skills and understanding in their chosen programme.
- 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.
- To enable students to enhance their learning experience, particularly with respect to project, by benefiting from the School's exceptional research led teaching.
- 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.
- To produce graduates who are recognised by the maritime industry worldwide as fully equipped to contribute at a professional engineering level, especially where a Master's degree is required.
- To instil in students an awareness of their professional responsibilities and the need for their own continuing professional development.
- To contribute to the working environment within the Department, such that students enjoy the University learning experience and wish to maintain contact with the Department in its future activities, professionally as well as socially.
- To provide a programme which meets the FHEQ at Honours level and which takes appropriate account of the subject benchmark statements appropriate to the course title.

## **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 appropriate to the course title.

### **Knowledge and Understanding**

On completing the programme students should:

- A1 Mathematics and physics appropriate to marine technology and related fields;
- A2 Detailed knowledge and understanding of facts, concepts, principles and theories relevant to the student's chosen area of specialisation within Marine Technology;
- A3 Knowledge of IT applications to the selected fields of study;
- A4 Conceptual and detailed design of artefacts appropriate to their area of specialisation;
- A5 Where appropriate, management principles and business practices, including professional and ethical responsibilities;
- A6 The role of marine technologists in society and the constraints within which their engineering judgement will be exercised;
- A7 Production practice including codes of practice and regulatory framework;
- A8 The assessment of safety risks, and the legislative framework for safety.

### **Teaching and Learning Methods**

Acquisition of A.1 and A.2 is through a combination of lectures, tutorials, example classes, laboratory activities and coursework. Outcome A.3 is achieved by lectures, tutorials and, where appropriate, hands-on computer exercises. Acquisition of A.4 and A.5 is through lectures, tutorials, case studies, laboratory experiments and student investigations and presentations. Outcome A.6 depends primarily on lectures and tutorial studies.

The broader professional outcomes, A.7, are taught by lectures and coursework studies. Outcome A.8 is formally taught in lectures and developed in tutorials, but is also central to experimental project investigations.

Throughout the student is encouraged to undertake independent reading both to supplement and consolidate what is being taught/learned and to broaden their individual knowledge and understanding of the subject.

### **Assessment Strategy**

Formative assessment occurs through tutorial examples and coursework. The primary means of assessing factual knowledge is the closed book examination. This is supported by assessed coursework and case studies, which involve both written and oral presentations. In depth individual learning frequently forms part of the project, which is assessed by dissertation and, for selected students, viva voce examination.

Formal examinations are used to assess intellectual abilities. Assessed coursework provides further opportunities to demonstrate intellect and ability. The project, which is assessed by dissertation and, for selected students, viva voce examination, provides final evidence of the levels attained.

### **Intellectual Skills**

## **B Subject –specific/professional skills**

Within the context of his chosen discipline, a successful student will be able to:

- B1 Use appropriate mathematical methods for modelling and analysing problems in marine technology;
- B2 Select appropriate experimental set-up and procedures;
- B3 Carry out laboratory experiments in a professional manner.
- B4 Write computer software and use it, or commercial packages, for appropriate tasks;
- B5 Design a system, component or process in selected fields;
- B6 Test design ideas practically through laboratory work or simulation with technical analysis and to evaluate the results critically;
- B7 Search for information for the further development of ideas;
- B8 Apply engineering techniques taking account of industrial and commercial constraints;
- B9 Manage projects effectively.

### **Teaching and Learning Methods**

Throughout the student is encouraged to undertake independent reading both to supplement and consolidate what is being taught/learned and to broaden their individual knowledge and understanding of the subject.

Where appropriate, B1 is reinforced in lectures, but learning is principally in tutorials and assignments.

The abilities characterised by B2 – B4 are initially encountered in lectures, practical classes and case studies, but are developed principally during the research project.

Acquisition of B5 occurs through lectures and case studies and may form a major part of the project. Experimental, research and design skills are further developed through coursework activities, laboratory experiments, and research and design projects. Individual feedback is given to students on all work produced. Creative and design skills are developed through design and project work. These activities develop the abilities listed in B6-B9.

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### **Practical Skills**

On completing the programme students should be able to:

A successful student will be able to:

- C1 Select and apply appropriate mathematical methods for modelling and analysing relevant problems;
- C2 Use scientific principles in the development of engineering solutions to practical problems;
- C3 Use scientific principles in the modelling and analysis of engineering systems, processes and products;

C4	To select and apply appropriate computer based methods for modelling and analysing problems in selected fields;
C5	Be creative in the solution of problems and in the development of designs;
C6	Integrate and evaluate information and data from a variety of sources;
C7	Take an holistic approach to solving problems and designing systems, applying professional judgements to balance risks, costs, benefits, safety, reliability, aesthetics and environmental impact.

**Teaching and Learning Methods**

The skills associated with C1-C3 are acquired principally through experience gained in coursework and the project. IT skills (C4) are developed initially through lectures and through hands-on exercises and assignments. Further individual learning may also form a significant part of the project. Skill in designing products or processes is acquired through lectures, and developed through case studies and/or the project. Case studies provide initial opportunities for developing the skills associated with C6 and C7, but the project forms the principal vehicle for their acquisition. The skills required for C8 are acquired initially through lectures and developed by case studies. Some projects may require further individual learning in this area. Effective project management is learnt through course works and the project.

**Assessment Strategy**

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

**Transferable/Key Skills**

On completing the programme, a successful student will be able to:

- D1 Manipulation and presentation of data in a variety of ways;
- D2 Use of scientific evidence based methods in the solution of problems;
- D3 Use of general IT skills;
- D4 Use of creativity and innovation in problem solving;
- D5 Working with limited or contradictory information;
- D6 Effective communication;
- D7 Engineering approach to the solution of problems;
- D8 Time and resource management.

**Teaching and Learning Methods**

The transferable skills associated with (D5, D6, D9) are developed in project-based coursework. All the other transferable skills are covered in a dedicated module on research skills.

**Assessment Strategy**

The skills associated with D1-D3 are assessed through formal examination. Those with D5, D6, D9 and D10 are assessed through coursework. Information retrieval and oral presentation test the skills of D4 and D7. Quantitative IT skills are assessed with D1-D3.

**12 Programme Curriculum, Structure and Features**

**Basic structure of the programme**

Each MSc comprises a 12 month programme taught over two semesters with examinations at the end of each semester. 180 credit modules (dissertation totals 80 credits).

Each MSc can also be taken part-time over 24 months. A preliminary year is also available (with the exception of MSc Marine Transport with Management), to enable candidates with non-standard qualifications to take final year undergraduate modules of their particular programme of study.

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

**Programme regulations (link to on-line version)**

[http://www.ncl.ac.uk/regulations/programme/2007-2008/programme/5069\\_including\\_preliminary\\_year\\_5071.php](http://www.ncl.ac.uk/regulations/programme/2007-2008/programme/5069_including_preliminary_year_5071.php)

**13 Criteria for admission**

*Entry qualifications*

Normally an upper-second-class Honours degree or higher in a relevant engineering or science discipline. Equivalent qualifications also considered on a case-by-case basis.

*Admissions policy/selection tools*

DPD selection.

*Non-standard Entry Requirements*

Considered on case-by-case basis with inspection of undergraduate transcripts and consideration of relevant work experience.

*Additional Requirements*

*Level of English Language capability*

Applicants whose first language is not English require IELTS 6.5, TOEFL 575 (paper-based) or 233 (computer-based), or equivalent

**14 Support for Student Learning**

*Induction*

During the first week of the first semester students attend an induction programme. New students will be given a general introduction to University life and the University's principle support services and general information about the School and their programme, as described in the Degree Programme Handbook. New and continuing students will be given detailed programme information and the timetable of lectures/practicals/labs/ tutorials/etc. The International Office offers an additional induction programme for overseas students (see <http://www.ncl.ac.uk/international/arrival/jan/index.phtml>)

*Study skills support*

Students will learn a range of Personal Transferable Skills, including Study Skills, as outlined in the Programme Specification. Some of this material, e.g. time management is covered in the appropriate Induction Programme. Students are explicitly tutored on their approach to both group and individual projects.

Numeracy support is available through Maths Aid. Further details are available at:

[http://www.ncl.ac.uk/library/news\\_details.php?news\\_id=159](http://www.ncl.ac.uk/library/news_details.php?news_id=159) Help with academic writing is available from the Writing Centre. Details can be obtained from [Alicia.Cresswell@ncl.ac.uk](mailto:Alicia.Cresswell@ncl.ac.uk)

#### *Academic support*

The initial point of contact for a student is with a lecturer or module leader, or their tutor (see below) for more generic issues. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Staff-Student Committee, and/or at the Board of Studies.

#### *Pastoral support*

All students are assigned a personal tutor whose responsibility is to monitor the academic performance and overall well-being of their tutees. Details of the personal tutor system can be found at <http://www.ncl.ac.uk/undergraduate/support/tutor.phtml>

In addition the University offers a range of support services, including the Student Advice Centre, the Counselling and Wellbeing team, the Mature Student Support Officer, and a Childcare Support Officer, see <http://www.ncl.ac.uk/undergraduate/support/welfare/index.phtml>

#### *Support for students with disabilities*

The University's Disability Support Service provides help and advice for disabled students at the University - and those thinking of coming to Newcastle. It provides individuals with: advice about the University's facilities, services and the accessibility of campus; details about the technical support available; guidance in study skills and advice on financial support arrangements; a resources room with equipment and software to assist students in their studies. For further details see <http://www.ncl.ac.uk/disability-support/>

#### *Learning resources*

The University's main learning resources are provided by the Robinson and Walton Libraries (for books, journals, online resources), and Information Systems and Services, which supports campus-wide computing facilities, see <http://www.ncl.ac.uk/undergraduate/degrees/facilities/index.phtml>

All new students whose first language is not English are required to take an English Language Proficiency Test. This is administered by INTO Newcastle University Centre on behalf of Newcastle University. Where appropriate, in-session language training can be provided. The INTO Newcastle University Centre houses a range of resources which may be particularly appropriate for those interested in an Erasmus exchange. See <http://ncl.ac.uk/langcen/index.htm>

### **15 Methods for evaluating and improving the quality and standards of teaching and learning**

#### *Module reviews*

All modules are subject to review by questionnaires which are considered by the Board of Studies. Changes to, or the introduction of new, modules are considered at the School Teaching and Learning Committee and at the Board of Studies. Student opinion is sought at the Staff-Student Committee and/or the Board of Studies. New modules and major changes to existing modules are subject to approval by the Faculty Teaching and Learning Committee.

#### *Programme reviews*

The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Teaching and Learning Committee.

#### *External Examiner reports*

External Examiner reports are considered by the Board of Studies. The Board responds to these reports through Faculty Teaching and Learning Committee. External Examiner reports are shared with institutional student representatives, through the Staff-Student Committee.

#### *Student evaluations*

All modules, and the degree programme, are subject to review by student questionnaires. Informal student evaluation is also obtained at the Staff-Student Committee, and the Board of Studies. The National Student Survey is sent out every year to final-year undergraduate

students, and consists of a set of questions seeking the students' views on the quality of the learning and teaching in their HEIs. Further information is at [www.thestudentsurvey.com/](http://www.thestudentsurvey.com/) With reference to the outcomes of the NSS and institutional student satisfaction surveys actions are taken at all appropriate levels by the institution.

*Mechanisms for gaining student feedback*

Feedback is channelled via the Staff-Student Committee and the Board of Studies.

*Faculty and University Review Mechanisms*

The programme is subject to the University's Internal Subject Review process, see [http://www.ncl.ac.uk/aqss/qsh/internal\\_subject\\_review/index.php](http://www.ncl.ac.uk/aqss/qsh/internal_subject_review/index.php)

*Accreditation reports*

*Additional mechanisms*

## 16 Regulation of assessment

*Pass mark*

The pass mark is 50 (Postgraduate programmes)

*Course requirements*

Progression is subject to the University's Masters Degree Progress Regulations, Taught and Research (<http://www.ncl.ac.uk/calendar/university.regs/tpmdepr.pdf>) and Examination Conventions for Taught Masters Degrees (<http://www.ncl.ac.uk/calendar/university.regs/tpmdeprexamconv.pdf>). Limited compensation up to 40 credits of the taught element and down to a mark of 40 is possible and there are reassessment opportunities, with certain restrictions.

The University employs a common marking scheme, which is specified in the Taught Postgraduate Examination Conventions, namely:

**Summary description applicable to postgraduate Masters programmes**

**Summary description applicable to postgraduate Certificate and Diploma programmes**

<50	Fail	<50	Fail
50-59	Pass	50 or above	Pass
60-69	Pass with Merit		
70 or above	Pass with Distinction		

*Role of the External Examiner*

An External Examiner, a distinguished member of the subject community, is appointed by Faculty Teaching and Learning Committee, after recommendation from the Board of Studies.

The External Examiner is expected to:

- See and approve examination papers
- Moderate examination and coursework marking
- Attend the Board of Examiners
- Report to the University on the standards of the programme

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

The University Prospectus (see <http://www.ncl.ac.uk/undergraduate/>)

The School Brochure (contact [enquiries@ncl.ac.uk](mailto:enquiries@ncl.ac.uk))

The University Regulations (see <http://www.ncl.ac.uk/calendar/university.regs/>)

The Degree Programme Handbook

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. The accuracy of the information contained is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.



## Mapping of Intended Learning Outcomes onto Curriculum/Modules

Module	Type	Intended Learning Outcomes			
		A	B	C	D
MAR8001	Compulsory	1,3	7,9	2,6	1,2,3,6,8
MAR8026	Compulsory	2	1,6		
MAR8031	Compulsory	2	1		
MAR8032	Compulsory	2	1		
MAR8024	Compulsory	2	1		
MAR8025	Compulsory	2	1		
MAR8098	Compulsory		7,8,9	1,2,3,4,5,6,7	1,2,4,5,8
MAR8003	Compulsory	2	1		
MAR8006	Optional	1,3	3,6		
MAR8017	Optional	2	1		
MAR8029	Optional	2	1		
MAR8018	Optional	2	1		
MAR8022	Optional	2	1		
MAR8023	Optional	2	1		