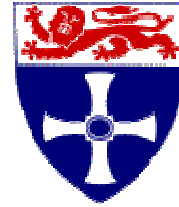


UNIVERSITY OF  
NEWCASTLE UPON TYNE

FACULTY OF  
SCIENCE, AGRICULTURE & ENGINEERING

DEGREE PROGRAMME SPECIFICATION

UNIVERSITY OF  
NEWCASTLE



## 1 Awarding Institutions

Heriot-Watt University  
University of Glasgow  
University of Newcastle upon Tyne  
University of Southampton

## 2 Teaching Institutions

As above  
University of Strathclyde  
University College London  
Rolls Royce PLC

## 3. Final Award

Master of Science (all awarding institutions)  
Postgraduate Diploma (all awarding institutions)  
Postgraduate Certificate (Heriot-Watt and Newcastle only)

## 4. Programme Title

MSc in Marine Technology	Naval Architecture Marine Engineering Offshore Engineering Small Craft Design Classification and Survey Conversion and Repair Defence General
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Postgraduate Diploma in Marine Technology	As above
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Postgraduate Certificate in Marine Technology

**5 Programme Accredited by:**

All modules are approved for Continuing Professional Development (CPD) by Institute of Marine Engineers and Royal Institution of Naval Architects.

MSc and PG Diploma programmes approved as 'Matching Sections' by IMarE and RINA.

**6 UCAS Code**

N/A (Postgraduate programme)

**7 QAA Subject Benchmarking Group(s)**

N/A (Postgraduate programme)

**8 Date of production/revision**

Revision 02, March 2004

**9 Programme Aims:**

The aim of this programme is to provide the marine industry within the UK with graduates who have the necessary skills and training in advanced technologies, management, business and IT. With this training, they will be able to provide the necessary leadership and vision to maintain and enhance the industry's knowledge base and improve competitiveness. The programme will provide students with advanced technical and managerial techniques that can be applied in the marine industry and enable them to take on major responsibility early in their careers.

**10 Intended Learning Outcomes; Teaching and Learning Strategies and Methods; Assessment Strategies and Methods****10(a) Programme Intended Learning Outcomes:****A Knowledge and understanding**

- 1 Advanced technology within the chosen technology stream
- 2 Business applications of advanced marine technologies
- 3 Concepts of non technical issues including economics, environmental issues, safety and legislation

**B Subject-specific/professional skills**

- 1 Theoretical design concepts and practical implementation
- 2 IT skills
- 3 Project planning
- 4 Project and resource management

**C Cognitive skills**

- 1 Collation, analysis and evaluation of data
- 2 Problem formulation
- 3 Problem solving
- 4 Decision making

**D Key (transferable) skills**

- 1 Communication skills
- 2 Time management
- 3 Teamworking
- 4 Ability to work alone

10(b)	Intended Learning Outcomes	How are they taught?	How are students enabled to learn?
A	<u>Knowledge and understanding</u>		
A1	Advanced technologies	Lectures, seminars, tutorials, distance learning material	Design exercises Independent reading Work based application and assessment Industrial project
A2	Business applications	Lectures, seminars, tutorials, evening presentations, distance learning material	Independent reading Work based application and assessment Industrial project Case studies
A3	Concepts of non technical issues	Lectures, seminars, tutorials, distance learning material	Independent reading Work based application and assessment Industrial project
B	<u>Subject specific skills</u>		
B1	Theoretical design concepts and practical implementation	Lectures, design classes	Design exercises Work based application and assessment Industrial project
B2	IT skills	Lectures, design classes	Use of web based system for distance learning Design exercises Work based application and assessment Industrial project
B3	Project planning	Lectures, seminars, distance learning material	Work based application and assessment Industrial project Design exercises

B4	Project and resource management	Lectures, seminars, distance learning material	Work based application and assessment Industrial project Design exercises
C	<u>Cognitive Skills</u>		
C1	Collation, analysis and evaluation of data	Design classes, lectures, seminars	Design exercises Industrial project Work based application and assessment
C2	Problem formulation	Design classes, seminars	Design exercises Industrial project Work based application and assessment
C3	Problem solving	Design classes, seminars	Design exercises Industrial project Work based application and assessment
C4	Decision making	Design classes, seminars	Design exercises Industrial project Work based application and assessment
D	<u>Key (transferable) Skills</u>		
D1	Communication skills	Seminars	Design presentations Industrial project dissertation and oral interview Work based assessments
D2	Time management	Seminars, Study skills information in student handbook	Design exercises Industrial project Work based assessments Distance learning pack
D3	Teamworking	Seminars	Design exercises Industrial project
D4	Ability to work alone	Study skills information in student handbook	Distance learning pack Work based assessments

<b>10(c) Programme Intended Learning Outcomes:</b>	<b>Teaching and Learning Methods and Strategies</b>
<p>A     <u>Knowledge and understanding</u></p> <p>1     Advanced technology</p> <p>2     Business applications of</p> <p>3     Concepts of non technical issues</p>	<p>Knowledge and understanding of A1 – A3 is generally taught via formal lectures and distance learning material, supplemented by seminars and tutorials. Students are encouraged to develop their knowledge and understanding by independent reading for which they are given guidance in the distance learning material. The use of design exercises during the intensive school and work based assessments and application after the intensive school also enable the student to learn. Knowledge and understanding is also achieved via a significant multi disciplinary industrial project which must include A1 – A3.</p>
<p>B     <u>Subject-specific/professional skills</u></p> <p>1     Theoretical design concepts and practical implementation</p> <p>2     IT Skills</p> <p>3     Project planning</p> <p>4     Project and resource management</p>	<p>Subject specific skills are highly relevant in this programme. Lectures and design classes are a key element to teaching subject specific skills. In addition, distance learning material is used to develop project planning and project and resource management skills (B3 and B4). Students are encouraged to learn by application, both during the module and in a work based environment. Design exercises during the modules and work based application as part of the post school study are the key methods for enabling the students to obtain and improve these important skills. In particular, design exercises require the student to apply theoretical work in a practical way, use a variety of software and organise and manage the design process. In addition, skill B2 is supplemented by the delivery system for the distance learning material which is a web based system called Blackboard.</p>

C	<u>Cognitive skills</u>	Cognitive skills are taught primarily through design classes, case studies and seminars. Development of these skills is particularly linked to industrial and work based application such as group and individual design exercises, work based, post school assignments and the industrial project.
1	Collation, analysis and evaluation of data	
2	Problem formulation	
3	Problem solving	
4	Decision making	
D	<u>Key (transferable) skills</u>	The key transferable skills are demonstrated in seminars and through the study skills information in the student handbook. This information is particularly important for the distance learning element of the programme. Expertise in these skills is developed by module and project presentations (D1), preparation of the project dissertation (D1), the industrial based group project (D1, D2, D3, D4)) and work based assignments (D1, D2, D4). The actual completion of the programme, including the distance learning pack, will, in itself, significantly develop key skills (D2, D4). The student must combine this study with commitments at work and at home.
1	Communication skills	
2	Time management	
3	Teamworking	
4	Ability to work alone	

<b>10(d) Programme Intended Learning Outcomes:</b>		<b>Assessment Strategy and Methods</b>
A	Knowledge and understanding	Knowledge and understanding is assessed via unseen written examination, course assignments and the industrial project. For A1 and A2 this is supplemented by performance in design exercises, where appropriate.
B	Subject-specific/professional skills	Subject specific skills are essentially assessed via design exercises (where appropriate), the industrial project and course assignments. Theoretical design concepts and practical implementation (B1) is also assessed via the unseen written examination.

C	Cognitive skills	Cognitive skills are all assessed by the industrial project and any assessed design exercises. Skill C1 is also assessed by the course assignments.
D	Key (transferable) skills	Communication skills (D1) is the most assessed key skills. Assessment includes design exercises, course assignments and the industrial project – dissertation and oral interview. Teamworking (D3) is also assessed by the project and design exercises. The other skills are not formally assessed in the programme.

## 11 Programme Curriculum, Structure, and Features:

### Programme Features

#### a. Duration of the course

The programme will be delivered as a part time modular programme.

For the MSc programme, the minimum duration of the programme is 2 years and the maximum duration is 5 years.

For the Postgraduate Diploma programme, the minimum duration of the programme is 2 years and the maximum duration is 5 years.

For the Postgraduate Certificate programme, the minimum duration of the programme is 1 year and the maximum duration is 3 years.

#### b. Stages

There are no fixed stages for the programme. The programme is designed for students working full time in industry and therefore needs to be as flexible as possible. Students will be able to choose which modules to complete each year.

#### c. Overall credit arrangements

MSc	180 credits
Postgraduate Diploma	120 credits
Postgraduate Certificate	60 credits

#### d. Module credit arrangements

Each taught module is a 10 credit module and this equates to 100 hours study time.

MSc programmes:

10 modules @ 10 credits each	100
Industrial project @ 80 credits	80
TOTAL	180 credits

(equivalent to 1800 hours of study)



Postgraduate Diploma	
8 modules @ 10 credits each	80
Industrial project @ 40 credits	40
TOTAL	120 credits
(equivalent to 1200 hours of study)	

Postgraduate Certificate	
6 modules @ 10 credits each	60
(equivalent to 600 hours of study)	

e. Requirements for progression

All modules must be passed by the student. One re-sit opportunity is permitted (details in Programme Regulations). Students can continue to undertake modules whilst awaiting a re-sit opportunity.

Core and foundation modules should be completed by the student at the early stages of their studies.

f. Innovative features of the course

The programme has a number of innovative features, in particular:

- Designed for graduate and engineers working full time.
- Programme is designed to be highly relevant to industry's needs.
- Collaborative programme involving six UK universities.
- Modules delivered by a combination of distance learning and intensive schools.
- Distance learning material available via a web based IT system.
- MSc and Postgraduate Diploma projects wholly industrial based.

### Curriculum and Structure

<u>Module</u>	<u>Credits</u>	<u>Status</u>	<u>Learning Outcomes</u>
MTEC_A1	10	Foun	All except A3, D3
MTEC_A2	10	Foun	All except A3, D3
MTEC_B1	10	Core	A3, B2 – B4, C1 – C4, D1, D2, D4
MTEC_B2	10	Core	A3, B2 – B4, C1 – C4, D1, D2, D4
MTEC_B3	10	Core	A3, B2 – B4, C1 – C4, D1, D2, D4
MTEC_B4	10	Core	A1, A2, B1 – B4, C1 – C4, D1, D2, D4
MTEC_C1	10	Spec	A3, B2 – B4, C1 – C4, D1, D2, D4
MTEC_C2	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1, D2, D4
MTEC_C3	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1 – D4
MTEC_C4	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1, D2, D4
MTEC_C5	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1 – D4

MTEC_C6	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1 – D4
MTEC_C7	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1 – D4
MTEC_C8	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1 – D4
MTEC_C9	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1, D2, D4
MTEC_C10	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1 – D4
MTEC_C11	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1 – D4
MTEC_C12	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1, D2, D4
MTEC_C13	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1, D2, D4
MTEC_C14	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1, D2, D4
MTEC_C15	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1, D2, D4
MTEC_C16	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1, D2, D4
MTEC_C17	10	Spec	A1 – A3, B1 – B4, C1 – C4, D1 – D4

Project 40/80 Compulsory A1 – A3, B1 – B4, C1 – C4, D1 – D4

Foun Foundation modules

Core Core modules

Spec Specialist modules

For list of module names and delivering university, see Appendix A

Non marine technology graduates are taught the fundamentals of naval architecture and marine engineering systems, design concepts and terminology via the foundation modules. The key learning outcomes for the two modules are therefore A1, A2 and B1. Other important skills developed, but to a lesser extent, are B1 – B4, C1 – C4, D1, D2 and D4.

All students undertaking a postgraduate programme must complete the four core modules. Maritime Economics, Marine Project Management and Risk, Reliability and Safety provide students with knowledge and understanding of non technical issues and their business applications (A2 and A3). These modules provide significant non technical breadth to the programme. The module Structural and Material Response provides knowledge and understanding of a technical subject (A1 and A2). These modules also develop all cognitive and subject specific skills through the management and completion of work based assignments and distance learning material. In particular, development of skills B3 and B4 takes place during module Project Management where planning and management is the subject topic. Skills D1, D2 and D4 are also developed through the use of seminars, assignments and completion of the distance learning material remotely.

Students completing an MSc or a Postgraduate Diploma then follow a subject specific technology stream, unless they are following the General programme, which allows a choice of modules from across the specialist streams.

Depth and breadth of knowledge of the chosen technology, its application in industry and associated non technical issues (economics, environmental, legislative, health and safety) is substantially developed via the specialist modules taught to an advanced level (A1 – A3, B1). Planning, undertaking and presentation of design exercises and post

course assignments enable students to enhance their skills in the application of subject specific skills by the use of software, planning and management of tasks and resources (B1 – B4). Key transferable skills are also developed by presentations, written assignments, management of deadlines and limited time available, working with strangers on design exercises and working alone and remotely on distance learning material and post course assignments (D1 – D4). Completing design exercises and assignments which require the handling and analysis of data, formulating and solving problems and making decisions, require all cognitive skills to be developed by the student (C1 – C4).

The industrial project requires the application of all learning outcomes. The student must identify the research subject, develop a plan of work, undertake the necessary advanced technical research, analysis and evaluation, involve a wide range of individuals (e.g. other technical disciplines, financial, health and safety, manufacturing etc), manage the project fully – resource, time and facilities, prepare a written report and complete an oral interview. This extensive project requires the student to fully utilise all skills learnt and developed on the programme.

## **12 Criteria for Admission:**

### A-Level Subjects and Grades

Maths/Science subjects preferred

### Undergraduate Degree

BEng Honours in marine technology subject or relevant subject (e.g civil, mechanical or environmental engineering). Class 2.2 or above.

### Alternative entry qualifications

Students with non standard entry qualifications will be considered on a case by case basis. Key criteria will be academic qualifications (equivalent to 2.2 Honours degree), technical experience, level of responsibility and leadership.

### Admissions Policy

All applicants, standard or non standard entry will be considered based on their academic qualifications and their relevant technical industrial experience.

All admissions will be undertaken in accordance with the equal opportunities policy set out in the Degree Programme Handbook.

Applicants who do not meet the standard entry qualification, will be asked to submit a CV detailing academic qualifications and industrial experience. This will be reviewed by the Programme Director on a case by case basis. Those not meeting entry standard levels may be advised on how the appropriate standard required can be achieved. The candidate will be informed of the outcome in writing.

### **13 Support for Students and their Learning:**

#### Induction

Induction will be primarily via the Degree Programme handbook and the Blackboard system

A full time programme co-ordinator is employed for this programme and can be contacted by telephone, fax or email.

#### Study skills support

Study skills support will be offered via the Degree Programme handbook. The Blackboard system will provide study skills information and support via the forum boards system. Remote support will be available from the programme co-ordinator and the academic staff including module leaders and industrial lecturers. This support will be generally via email.

#### Academic support

The Degree Programme handbook gives contact details of each module leader and their nominated deputy. Further academic support can be obtained during the intensive week school when the students have the opportunity to meet the academic staff involved.

The Forum boards on the Blackboard system also offer academic and peer support to the student.

#### Pastoral support

Pastoral support will be available via the Programme Co-ordinator, Directors of Study at the collaborating university and Programme Director. Counselling and other support mechanisms are available at all of the collaborating institutions.

#### Support for Special Needs

Support for Special Needs will be offered by the Disability Unit (and equivalent at each collaborating university). Counselling services at each university will also be available to help students who need counselling support.

#### Learning resources

The following learning resources will be made available to each student:

- Use of all facilities (including library and computing service) at university of registration.
- Use of facilities (including library) at university of delivery for the week long intensive school.
- Web based Blackboard system
- Key reference text book for each module which is to be supplied by the programme.
- Distance learning material.

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

### Module reviews

Modules will be reviewed by the module leader either on an annual basis or after each module delivery (whichever is the longer period) following evaluation of student feedback.

The review process will be monitored by the programme's Board of Studies.

### Programme reviews

Programme reviews will take place by the Board of Studies and will consider feedback from students, industry, module leaders and the Board of Management.

### External examiner reports

External examiner reports will be supplied to the Board of Studies and to each collaborating university. Each university will review the report in accordance with their own procedure. The Board of Studies will also review the report and any action identified as a result of this review will be documented and actioned.

### Accreditation reports

Accreditation reports will be reviewed by the Board of Studies and any action identified as a result of the review will be documented and actioned.

### Student evaluations

Student evaluations will be sought:

1. After each module
2. After the completion of the industrial project
3. As a general 'programme review' on a regular basis.

Student evaluations will be considered at the next Board of Studies meeting.

### Feedback Mechanisms

Student representations will be welcomed onto the Board of Studies. This will ensure feedback to the students about their comments and suggestions. Supporting organisations (companies etc) will also be asked to provide feedback on the project and the programme as a whole.

Feedback will also be sought from the industrial partners on the Board of Management.

## Faculty and University Review Mechanisms

Taught Programme Review  
 Internal Subject Review  
 External Examiners reports  
 Accreditation reports (IMarE and RINA for Matching Section)

### **15 Regulation of Assessment**

#### Pass Marks

Pass mark for module is 50%.  
 Pass mark for project dissertation is 50%.

#### Course Requirements

A student must pass all the modules and the project in order to be eligible for a postgraduate award. One re-sit of each module is permitted and students can continue taking modules whilst waiting for the opportunity to re-sit. Students will be offered the opportunity to re-submit their dissertation on one occasion. This must be done within a 12 month period.

#### Weighting of Stages/Modules

N/A  
 All modules are worth 10 credits.  
 Project is 80 credits for MSc and 40 credits for Diploma.

#### Common Marking Scheme

MSc with Distinction is available and the student must achieve:

- 70% or above for the project dissertation
- average mark of 70% or above for the modules

#### Role of the External Examiner

The External Examiners are appointed in accordance with each institution's own procedures. There are 2 External Examiners for this programme – 1 academic and 1 industrialist. The academic External Examiner must be a distinguished member of the academic community in the field of marine technology. The industrial External Examiner should be able to offer extensive practical experience in the marine technology industrial sector.

The role of the External Examiner is:

- Approve examination questions
- Attend Board of Examiners meetings
- Review distance learning material.
- Report to universities and Board of Studies on comparability of programme with other postgraduate schemes.

## **16 Indicators of Quality and Standards:**

Professional Accreditation Reports

IMarE/RINA reports for Matching Section accreditation  
Approval of modules for CPD.

Internal Review Reports

Internal reviews as undertaken at each university.

Previous QAA Reports

New programme so no previous QAA reports available.

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.

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

The University Prospectus

The University and Degree Programme Regulations

The Degree Programme Handbook

QAA Subject Review Report