

PROGRAMME SPECIFICATION	
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1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	MSc Subsea Engineering and Management
4	Programme Title	Subsea Engineering and Management
5	Programme Code	5165
6	Programme Accreditation	N/A
7	QAA Subject Benchmark(s)	N/A
8	FHEQ Level	7
9	Last updated	14 th June 2009

10	Programme Aims
<p>The broad aims of this programme are:</p> <ol style="list-style-type: none"> 1. To supply regional employers in the subsea sector with the high-quality, subsea-specific, higher skills provision, which they require to sustain and grow their innovative and highly significant world class sector. 2. To provide a curriculum that attracts local and international students to subsea engineering at Newcastle University, is relevant to the subsea sector, accessible to the local workforce and forges relationships between the students and the subsea industry. 3. To strengthen and develop the established links between the regional subsea sector and the university. 4. To provide a programme consistent with Level 7 of the FHEQ <p>In addition, the programme has the following underlying aims:</p> <ol style="list-style-type: none"> i) To equip students, having diverse engineering backgrounds, with knowledge and understanding in subsea engineering, management and business practices and to appropriately apply this knowledge. ii) To introduce students to the subject material recommended by the academic-industry steering committee for subsea engineering and management and approved by the Boards of Studies of Schools contributing to teaching the course as well as the SAgE and HASS Faculty Teaching and Learning Committees and the University Teaching and Learning Committee. Accreditation of the course by relevant professional institutions (IMarEst, IMechE, IGEM, IOM3) will also be sought. iii) To enable students to realise their potential by exploiting the Faculties' exceptional research base to inform teaching and lecturing activities. iv) To instil in students an awareness of their professional responsibilities and the need for their own continuing professional development. v) 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. vi) To contribute to the working environment within the Faculties, such that students enjoy the University learning experience and wish to maintain contact with the Faculties in their future activities, professionally as well as socially. 	

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.
Knowledge and Understanding On completing the programme a successful student should be able to demonstrate knowledge and understanding of: A1. The key steps within the lifecycle of subsea plant including design, construction, installation, asset management, maintenance and control and the developing technologies in these areas. A2. The technical issues affecting the design, construction, and maintenance of subsea plant including corrosion, materials, dynamics, structural integrity and geotechnics. A3. The role of subsea engineering in the context of the hydrocarbon production chain and the marine environment. A4. Key non-technical aspects of subsea engineering including project and operations management. A5. A particular subsea engineering topic to be studied in depth in the student's project.
Teaching and Learning Methods An integrated teaching approach has been adopted to develop knowledge and understanding incorporating lectures, laboratory practicals, computer practicals, industrial visits and workshops. Industrial visits are to companies in the North East, to demonstrate the role that the area plays in the pipeline industry.
Assessment Strategy Knowledge and understanding (A1 to A5) is summatively assessed by unseen written examination and written coursework and dissertation. Formative assessment is conducted through feedback on tutorial exercises and written work and through monitoring of participation in workshops and case studies.
Intellectual Skills On completing the programme students should be able to: B1. Collate, analyse and critically evaluate data from a range of sources, including some outside the engineering discipline and relate these to the technical, economic, legal, environmental and managerial aspects of subsea engineering. B2. Independently design, plan and execute studies in selected topics and case studies within subsea engineering. B3. Propose and test a thesis through the selection of appropriate experimental, computer simulation or data analysis procedures and critically evaluate the results. B4. Conduct a detailed research investigation into a subsea related issue and report the findings in an appropriate written dissertation project report.
Teaching and Learning Methods The abilities characterised by B1-B4 are initially encountered in lectures, tutorials and workshops. Experimental, research, software and design skills are further developed through coursework, tutorial exercises and individual projects. All of the skills are principally taught through the dissertation project which is individually supervised through the proposal, execution and delivery stages by an academic member of staff and an industrial contact (where possible).
Assessment Strategy B1 and B4 are assessed through literature reviews, coursework and workshop reports, however the skills B2 to B4 are principally assessed through the dissertation project report and, for selected students, by viva voce examination.
Practical Skills

<p>On completing the programme students should be able to:</p> <p>C1. Select and apply appropriate mathematical models in the simulation and analysis of engineering and management problems and data.</p> <p>C2. Select and use appropriate software packages and computer based methods for the modelling and simulation of engineering and management systems.</p> <p>C3. Identify, design and apply relevant laboratory tests to the solution of subsea engineering problems.</p> <p>C4. Access and utilise a range of sources of information relevant to subsea engineering and management.</p>
Teaching and Learning Methods
<p>The practical skills (C1 to C4) are developed initially through lectures but also through hands-on exercises and coursework, however, the project is the principal method through which these skills are applied. Some projects will develop skills C1 to C3 in more depth and may require further individual learning and one-to-one tuition in these areas.</p>
Assessment Strategy
<p>Skills C1 to C4 are assessed through coursework exercises, however, the major summative assessment of these skills is through the research project report.</p>
Transferable/Key Skills
<p>On completing the programme students should:</p> <p>D1. Have developed effective verbal and written communication skills appropriate to the intended audience.</p> <p>D2. Be able to manipulate and present data and ideas in a variety of ways.</p> <p>D3. Be capable of making critical and effective use of IT including standard software packages and internet resources as a means of communication and source of information.</p> <p>D4. Possess independent study skills, self organisation and time management.</p> <p>D5. Have developed teamwork and interpersonal skills, including identification of individual and collective goals and responsibilities, management of meetings and schedules, recognition and respect for the views of others, conflict resolution and building consensus.</p>
Teaching and Learning Methods
<p>D1 to D3 are introduced in the lectures and practicals. Independent study (D4) is promoted in the final research project whereas teamwork (D5) is practised in group exercises in the compulsory modules.</p>
Assessment Strategy
<p>Communication skills are assessed by unseen examination question answers, oral presentations, written reports in the coursework of a number of modules. Data manipulation, presentation, IT skills and study skills are assessed by coursework reports but principally through the research project, whereas teamwork is assessed through group coursework exercises.</p>

12 Programme Curriculum, Structure and Features

Basic structure of the programme

The course duration is either 12 months of full-time study or 24-36 months of part-time study. The part-time course has been introduced specifically for local industries, to enable them to provide CPD for their staff whilst they are still working in the company. Full-time and part-time students will be taught together during the blocked teaching sessions. It is anticipated that, in the future, this course could be taken under the credit accumulation and transfer framework. The course is made up of a taught component worth 120 credits and a dissertation worth a further 60 credits. The taught component of the course is delivered in blocks of upto 6days (depending on the credit value of the module). All of the modules are compulsory.

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

Although there are competitor institutions offering similar courses, the course at Newcastle benefits from committed input from the local industry to the design and delivery of the course. The principal differentiating factor is the inclusion of management modules into the course, which are not offered at any of the competitor institutes. As the requirement for these types of modules was identified as a need of the industry, this is seen as an advantage in producing a 'Newcastle' subsea engineer who will be distinctive in the graduate marketplace.

Another key and defining feature of the programme is that, although the Subsea Engineering & Management MSc is administered in the School of Marine Science and Technology, it is a cross-school and cross-faculty initiative which is taught jointly between the Schools of Marine Science and Technology, Civil Engineering and GeoSciences, Electrical, Electronic and Computer Engineering, Chemical Engineering and Advanced Materials and Newcastle University Business School.

Many of the modules are delivered by a partnership of academic staff together with specialists from local and national subsea manufacturing, operating, construction, integrity and consulting companies. The course was specifically designed with a high level of external lecturer involvement to provide insight into the industry and real issues, problems and solutions.

Programme regulations (link to on-line version)

<http://www.ncl.ac.uk/regulations/programme/>

13 Criteria for admission*Entry qualifications*

Normally an undergraduate honours degree (upper second or first class) or equivalent in a relevant engineering discipline (e.g. mechanical engineering, materials engineering, chemical engineering, offshore engineering, marine technology, civil or geotechnical engineering).

Admissions policy/selection tools

DP selection: applicants meeting entry qualifications can register for the MSc

Non-standard Entry Requirements

Non-standard qualifications will be considered on an individual basis taking into account degree subject area and relevant experience.

Level of English Language capability

IELTS 6.5 (or equivalent)

14 Support for Student Learning

The Student Services portal provides links to key services and other information and is available at: <http://www.ncl.ac.uk/students/>

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.

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 and help with academic writing is available from the Writing Centre (further information is available from the Robinson Library).

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. In addition the University offers a range of support services, including one-to-one counselling and guidance or group sessions / workshops on a range of topics, such as emotional issues e.g. Stress and anxiety, student finance and budgeting, disability matters etc. There is specialist support available for students with dyslexia and mental health issues. Furthermore, the Union Society operates a Student Advice Centre, which can provide advocacy and support to students on a range of topics including housing, debt, legal issues etc.

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.

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.

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.

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 Board of Studies and/or the School Teaching and Learning Committee. 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 relevant 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. The FTLC takes an overview of all programmes within the Faculty and reports any Faculty or institutional issues to the University 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 results from student surveys are considered as part of the Annual Monitoring and Review of the programme and any arising actions are captured at programme and

School / institutional level and reported to the appropriate body.

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. Every five years degree programmes in each subject area are subject to periodic review. This involves both the detailed consideration of a range of documentation, and a two-day review visit by a review team which includes an external subject specialist in addition to University and Faculty representatives. Following the review a report is produced, which forms the basis for a decision by University Teaching and Learning Committee on whether the programmes reviewed should be re-approved for a further five year period.

Accreditation reports

Accreditation reports will be considered in the evaluation process when available.

Additional mechanisms

There is informal discussion throughout the year with teachers, module leaders and the Degree Programme Director and examples of changes in assessment and deadlines in response to student needs.

16 Regulation of assessment

Pass mark

The pass mark is 50%

Course requirements

Progression is subject to the University's Masters Degree Progress Regulations, Taught and Research and Examination Conventions for Taught Masters Degrees. 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

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

Summary description applicable to postgraduate Certificate and Diploma programmes

<50	Fail
50 or above	Pass

Role of the External Examiner

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

- i. See and approve assessment papers
- ii. Moderate examination and coursework marking
- iii. Attend the Board of Examiners
- iv. Report to the University on the standards of the programme

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

The University Prospectus: <http://www.ncl.ac.uk/postgraduate/>

The School Brochure (contact enquiries@ncl.ac.uk)

Degree Programme and University Regulations: <http://www.ncl.ac.uk/regulations/docs/>

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
EEE8072	Compulsory	A1		C1	D1,D4
MAR8050	Compulsory	A1,A2,A3	B2,B3	C1	D1,D4,D5
MAR8051	Compulsory	A1,A2	B2	C1,C2	D1,D2,D3,D4
MAR8052	Compulsory	A1,A2	B2	C1,C3	D1,D2,D3,D4
MAR8045	Compulsory	A1,A3,A3	B1	C4	D1,D4
MAR8055	Compulsory	A1,A3,A3	B1	C4	D1,D4
MAR8046	Compulsory	A1,A2	B1,B2,B3	C2,C3	D1,D2,D3,D4
MAR8047	Compulsory	A1,A2	B2	C4	D1,D4,D5
MAR8048	Compulsory	A1,A2			D1,D4
MAR8049	Compulsory	A2,A4,A5	B1,B2,B3,B4	C1,C2,C3,C4	D1,D2,D3,D4
MST8020	Compulsory	A4	B1	C1,C2	D1,D2,D3,D4,D5
NBS8242	Compulsory	A4	B1	C1,C2	D1,D2,D3,D4,D5