PROGRAMME SPECIFICATION	

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	Master of Science Postgraduate Certificate Postgraduate Diploma
4	**Programme Title**	Master of Science in Pipeline Engineering Postgraduate Certificate in Pipeline Engineering Postgraduate Diploma in Pipeline Engineering
5	**UCAS/Programme Code**	5080F/5080P 3049F/3049P 3431F/3431P
6	**Programme Accreditation**	RINA, IMechE, IChemE, IGEM, IOM3
7	**QAA Subject Benchmark(s)**	N/A
8	**FHEQ Level**	7
9	**Date written/revised**	July 2010

10 Programme Aims

The aims of the course are to produce graduates who have developed well founded knowledge and understanding in pipeline engineering so that they are regarded as being competent to practise as pipeline engineers by prospective employers. To meet these aims, the course has the following objectives:

1. To equip students, having diverse engineering backgrounds, with knowledge and understanding in pipeline engineering.

2. To introduce students to the subject material recommended by the steering committee in pipeline engineering and approved by the Teaching and Academic boards of Schools contributing to teaching the course as well as the Faculty and the University Teaching Committees.

3. To enable students to realise their potential by exploiting the Faculty's exceptional research base to inform teaching and lecturing activities.

4. 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 the pipeline engineering activities.

5. To instil in students an awareness of their professional responsibilities and the need for their own continuing professional development.

6. 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.

7. 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.

11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the areas listed below. Students on the MSc will achieve all of the outcomes, while students on the Diploma and Certificate courses will achieve a proportion of the outcomes, relevant to the number of credits taken.

Knowledge and Understanding

On completing the programme a successful student should be able to demonstrate knowledge and understanding of:

A1. The key steps within a pipeline's lifecycle including design, construction, installation, asset management, maintenance and dismantling.

A2. The technical issues affecting the design, construction, and maintenance of both onshore and offshore pipelines including hydrocarbon production and processes, corrosion, materials, dynamics, structural integrity and geotechnics.

A3. Key non technical aspects of pipeline engineering including health, safety, environment and economics.

A4. A particular pipeline engineering topic to be studied in depth in the student's project (for MSc and Diploma students).

Teaching and Learning Methods

An integrated teaching approach has been adopted to develop knowledge and understanding incorporating lectures, computer practicals, industrial visits and workshops. The workshops involve industrial collaborators coming to the university to present case study problems that the students have to work through. 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 A4) is summatively assessed by unseen written examination and written coursework. 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 these programmes all students should be able to:

B1. Collate, analyse and critically evaluate data from a range of sources relating to the technical, economic, legal and environmental aspects of pipeline engineering.

B2. Independently design, plan and execute studies in selected topics and case studies within pipeline engineering.

In addition, students on the MSc and Diploma courses should be able to:

B3. Propose and test a thesis through the selection of appropriate experimental, computer simulation or data analysis procedures and critically evaluate the results.

B4. Defend a thesis through a written report or oral presentation.

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 (MSc and Diploma students only). For MSc and Diploma students only, these skills are further developed 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 and coursework and workshop reports, however the skills B2 to B4 are principally assessed through the dissertation project report.

Practical Skills

On completing the programme students should be able to:

C1. Select and apply appropriate mathematical models in the simulation and analysis of pipeline engineering problems and data.

C2. Select and use appropriate software packages and computer based methods for the modelling and simulation of pipeline systems.

C3. Identify, design and apply relevant laboratory tests to the solution of a pipeline engineering problems.

C4. Access and utilise a range of sources of information relevant to pipeline engineering.

Teaching and Learning Methods

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 for MSc and Diploma students. 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.

Assessment Strategy

Skills C1, C2 and C4 are assessed through coursework exercises, however, the major summative assessment of these skills is through the research project report.

Transferable/Key Skills

On completing the programme students should:

D1. Have effective verbal and written communication skills appropriate to the intended audience.

D2. Be able to manipulate and present data and ideas in a variety of ways.

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.

D4. Possess independent study skills, self organisation and time management.

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.

Teaching and Learning Methods

D1 to D3 are introduced in the research skills module demonstration and practicals. Independent study is promoted in the final research project for MSc and Diploma students whereas teamwork is practised in independent group exercises in the compulsory modules (D5 for MSc and Diploma students only: Certificate students may develop these skills dependant on the combination of modules chosen).

Assessment Strategy

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.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

Master of Science – 180 credits
The MSc course duration is either 12 months of full-time study or normally 24 to 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. The course is made up of a taught component worth 120 credits and a dissertation worth a further 60 credits. All of the modules are compulsory. Examinations are taken in January (Semester 1) and May/June (Semester 2).

Postgraduate Diploma – 120 credits
The minimum duration of the Diploma is 9 months and the maximum duration is 5 years. Students on the Diploma course must take the compulsory modules Fundamentals of Pipeline Engineering (15 credits), Pipeline Structural Analysis (15 credits) and a 30 credit project. The remaining 60 credits are selected from the remaining modules on the MSc course.

Postgraduate Certificate – 60 credits
The minimum duration for the PG Certificate is 6 months and the maximum duration is 3 years. Students on the Diploma course must take the compulsory modules Fundamentals of Pipeline Engineering (15 credits) and Pipeline Structural Analysis (15 credits). The remaining 30 credits are selected from the remaining modules on the MSc course.

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

Newcastle University is in the unique position of running the only accessible MSc course dedicated to high pressure oil and gas pipeline engineering in the world. Another key and defining feature of the programme is that, although the Pipeline Engineering MSc is administered in the School of Marine Science and Technology, it is a cross school initiative which is taught jointly between the Schools of Marine Science and Technology (50%), Civil Engineering and GeoSciences (16%) and Chemical Engineering and Advanced Materials (34%). Many of the modules are delivered by a partnership of academic staff together with specialists from local and national pipeline operating, construction, integrity and consulting companies. The course was specifically designed with a high level of external lecturer involvement (40%) 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/

13 Criteria for admission

Entry qualifications
Normally undergraduate honours degree or equivalent in a relevant engineering discipline (e.g. marine/mechanical engineering, materials engineering, chemical engineering, offshore engineering, marine technology, civil or geotechnical engineering).

Admissions policy/selection tools
DP selection: applicants meeting entry qualifications and additional requirements can register for the MSc, non-standard qualifications may be considered for the two year programme, MSc Pipeline Engineering with Preliminary Year.

Level of English Language capability
Minimum IELTS 6.0 or TOEFL 550 (213 cbt).

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

Help with academic writing is available from the Writing Centre. Details can be obtained from 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-sessional 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/ 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

Accreditation reports
Not available at this revision.

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 (Postgraduate programmes)

Course requirements
Progression is subject to the University's Undergraduate Progress Regulations (http://www.ncl.ac.uk/calendar/university.regs/ugcont.pdf) and Undergraduate Examination Conventions (http://www.ncl.ac.uk/calendar/university.regs/ugexamconv.pdf). In summary, students must pass, or be deemed to have passed, 120 credits at each Stage. Limited compensation up to 40 credits and down to a mark of 35 is possible at each Stage and there are resit opportunities, with certain restrictions.

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.

Weighting of stages
Not applicable.

Common Marking Scheme
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 Diploma and Certificate 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, 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)

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.

Annex

Mapping of Intended Learning Outcomes onto Curriculum/Modules

		Intended Learning Outcomes			
Module	**Type**	**A**	**B**	**C**	**D**
CME8021	Compulsory	3,4	1,2,4	4	1,2,3,4,5
CME8022	Compulsory	2,4	1,2,3	1,2,3	1,2,3,4
MAR8057	Compulsory	2,4	1,2,3	4	1,2,3,4,5
MAR8053	Compulsory	3,4	1	1,4	1,2,3,4
MAR8009*	Compulsory	1,2,3,4	1	4	1,2,3,4
MAR8010*	Compulsory	1,2,4	1,2,3	1,2,3,4	1,2,3,4
MAR8011	Compulsory	2,4	1	1,4	1,2,3,4
MAR8012	Compulsory	1,3,4	1,2	4	1,2,3,4,5
MAR8013	Compulsory	1,3,4	1,2,3	1,4	1,2,3,4,5
CME8039	Compulsory	1,2,4	1,2	3,4	1,2,3,4
CME8040	Compulsory	1,2,4	1,2,3,4	3,4	1,2,3,4
MAR8097	Compulsory	4	1,2,3,4	1,2,3,4	1,2,3,4,5
MAR8056**	Compulsory	4	1,2,3,4	1,2,3,4	1,2,3,4,5

* Compulsory modules for the Diploma and Certificate Courses
** Compulsory module for the Diploma Course