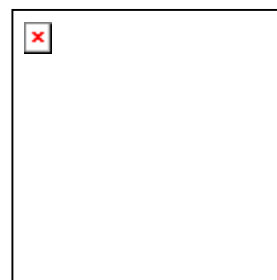


UNIVERSITY
OF
NEWCASTLE UPON TYNE



DEGREE PROGRAMME SPECIFICATION

- | | |
|-----------------------------------------|------------------------------------------------------------|
| 1. Awarding Institution: | University of Newcastle upon Tyne |
| 2. Teaching Institution: | University of Newcastle upon Tyne |
| 3. Programmes Accredited by: | N/A |
| 4. Final Award: | M.Sc. |
| 5. Programme Titles: | M.Sc. in Hydroinformatics and Management Systems
(5053) |
| 6. UCAS codes: | N/A |
| 7. QAA Benchmarking Group | N/A |
| 8. Date of production / revision | November 2004 (revision) |

9. Educational Aims of the Programme

The programme aims:

- To develop the understanding and skills needed to apply hydroinformatic tools and systems in the management/decision making processes within the water industry
- To provide opportunities for flexible learning in the field of Hydroinformatics and Management Systems to all water industry professionals
- To make accessible to the individual the collective strengths and expertise of the three academic partner institutions which originally developed the course (Universities of Newcastle, Birmingham and Sheffield)
- To satisfy the professional development needs of the individual and of his/her employers
- To match the QAA Frameworks for Higher Education Qualifications descriptor for masters degrees (M).

10. Programme Outcomes

The programmes provide opportunities for students to develop and demonstrate knowledge and understanding, skills, qualities and other attributes in the following areas. The typical (modal) student will have:

A. Knowledge & Understanding

- A.1 a sound scientific understanding of water in the natural and built environment;
- A.2 the technical expertise that underpins informed planning and decision-making;
- A.3 the training in business and management systems required by modern professionals in the water and environmental sectors;
- A.4 developed and learned new transferable skills in both engineering and management disciplines;
- A.5 a new and desirable qualification to aid career progression to senior management levels

Teaching/learning methods and strategies:

Acquisition of A.1 to A.5 is through a combination of self-learning, intensive one week residential courses at Newcastle and coursework

Assessment

Formal assessment occurs through tutorial exercises 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 forms part of the project, which is assessed by dissertation, poster, oral presentation and viva voce examination.

B. Intellectual Abilities

- B.1. Ability to select and apply appropriate mathematical methods for modelling and analysing relevant problems;
- B.2. Use of scientific principles in the development of engineering and water environment solutions for practical problems;
- B.3. Use of scientific principles in the modelling and analysis of engineering systems, processes and products;
- B.4. Ability to select and apply appropriate computer based methods for modelling and analysing problems in the water industry;
- B.5. The ability to balance Technical and Management skills focused on the water industry;
- B.6. The ability to choose, to apply or to construct hydroinformatic tools;
- B.7. Creation of new products through synthesis of ideas from a wide range of sources;
- B.8. Ability to produce solutions to problems through the application of engineering and water environment knowledge and understanding;

Teaching/learning methods and strategies:

B.1 to B.8 – learning is through a mix of self-learning and residential PD Courses.

Assessment

Closed-book examinations are used to assess intellectual abilities.

Assessed coursework provides further opportunities to demonstrate intellect and ability.

The project, which is assessed by dissertation, poster, oral presentation and viva voce examination, provides final evidence of the level attained.

C. Practical Skills

- C.1. Use of relevant test and measurement equipment;
- C.2. The ability to write hydroinformatic software tools;
- C.3. The ability to use state of the art informatic technologies;
- C.4. Planning, execution and reporting of a research project;
- C.5. Ability to design a system, component or process in selected fields;
- C.6. Ability to search for information and develop ideas further;
- C.7. Ability to evaluate the performance of hydroinformatic tools and systems;
- C.8. Ability to apply hydroinformatic tools and systems taking account of industrial and commercial constraints;

Teaching/learning methods and strategies:

Learning is principally via self-learning.

Assessment

Outcomes C.1-C.8 are not explicitly assessed but are necessary for the successful completion of coursework and project requirements.

D. General Transferable Skills

- D.1. Manipulation and presentation of data in a variety of ways;
- D.2. Use of scientific evidence-based methods in the solution of problems;
- D.3. Use of creativity and innovation in problem solving;
- D.4. Effective communication;
- D.5. Use of general IT skills;
- D.6. Time and resource management;

Teaching/learning methods and strategies:

Outcomes D.1-D.6. may be introduced through examples in self-learning. D.1-D.4 are developed further through coursework.

Assessment

Skills D.1-D.3 are essential to complete examination and assignments to a satisfactory standard.

Acquisition of D.4. is demonstrated during the assessment of both case studies and the project.

Outcomes D.5 and D.6. are essential for satisfactory completion of the project and dissertation, which also requires command of outcomes D.1-D.4.

11. Programme structures: credits, modules, levels and awards.

This is a modular degree designed for part-time study. The primary aim of the programme is to respond to the dramatic impact that information technology is having on water industry planning and operations. The programme is designed to provide training at M.Sc. level for recent graduates in full-time employment in industry. Each module may also be taken as a stand-alone unit for professional development (PD) purposes.

Every M.Sc. student gains 180 credits over the programme period. The completion of the core modules and tutorial assignments, comprising 60 credits, will take place across semesters 1 and 2. Optional modules, comprising 60 credits, will be taken over the three year period. A work-based dissertation, comprising 60 credits, will be undertaken during years 2 and 3.

The programme of study is as defined below:

Module code	Credit	Descriptive Title
<i>Compulsory modules:</i>		
CWI830	15	Water Quantity and Quality
CWI831	15	Data and Hydroinformatics
CWI832	15	Computation and Hydroinformatics
CWI833	15	Management Systems and Processes
CWI899	60	Dissertation
<i>And modules to the value of 60 credits from the following:</i>		
CWI806	10	Hydroinformatic Systems Development
CWI807	10	River Modelling
CWI808	10	Hydrological Risks and Climate Change
CWI809	10	Catchment Modelling
CWI810	10	Groundwater Assessment
CWI811	10	Groundwater Modelling
CWI812	10	Groundwater Pollution and Remediation
CWI813	10	Risk Assessment of Contaminated Land
CWI814	10	Integrated River Basin Management
CWI815	10	Nutrient Pollution Management
CWI816	10	Water Distribution Network Management
CWI817	10	Urban Drainage Systems
CWI818	10	Principles of Risk Assessment and Management
CWI819	10	Strategic Management
CWI823	10	Corporate Communications
CWI824	10	Managing Organisations in Distress
CWI826	10	Water Conservation and Demand Management
CWI827	10	Innovative Asset Management Planning
CWI828	10	Flood Risk Estimation
CWI829	10	Mine Water Pollution

During the first year, the primary aim of establishing a sound base of knowledge in Hydroinformatics and Management Systems is achieved through the four core modules (three technical, one management). Over the three year-period, a total of six optional modules must be taken; of these, a minimum of one and a maximum of two must be management modules.

Candidates can choose technical modules relating to either Integrated River Basin Management or Urban Infrastructure Management, or both, depending on the requirements of the individual student.

Intellectual abilities (B.1-B.8) are developed initially through self-learning but are further reinforced through coursework assignments in the compulsory and optional modules and through induction and residential periods. Assignments also develop Practical Skills (C.6-C.8) and a range of Transferable Skills (D.1-D.8).

The Project, which forms a substantial part of the programme, involves individual acquisition of knowledge and abilities (A.1-A.5, B.1-B.8). Project planning and execution (C.4) take place throughout the second and third years. Experience is also gained of Practical Skills (C.1-C.7). Satisfactory completion of the dissertation and examination requires ample command of the Transferable Skills outcomes (D.1-D.6).

12. Support for Students

Services and facilities available to students include the following:

- Personal Tutor;
- Degree Programme Director;
- Administrative staff and services;
- Student/Staff ratio of about 2:1;
- Library visits and instruction;
- School Student Handbook (Web based);
- Water Resources Group Postgraduate Degree Programme Handbook;
- University Information Systems and Services (Computing Service) facilities (including extensive PC and UNIX provision, software applications, e-mail and internet access);
- University (Robinson) Library, including search facilities and inter-library loans;
- Extensive laboratories;
- University Accommodation Office;
- University Careers Service;
- University Counselling Service;
- University Language Centre;
- University Disability Support;
- Students' Union services, including societies, refectories and Student Advice Centre;
- Centre for Physical Recreation and Sport;
- Student Progress Office;
- International Office;
- University Chaplaincy;
- Saville Medical Practice.

(Ref: Postgraduate Student Support:	http://www.ncl.ac.uk/student-support/postgraduate
Student Welfare	http://www.ncl.ac.uk/student-support/welfare.htm
Student Progress Office:	http://www.ncl.ac.uk/spo/
Student Accommodation:	http://www.ncl.ac.uk/accommodation
Careers Service:	http://crilly.ncl.ac.uk/cems/careers/students/pages/login.asp
University Computing Service	http://www.ncl.ac.uk/iss/
The Language Centre	http://www.ncl.ac.uk/langcen/
Newcastle University Library	http://www.ncl.ac.uk/library
Disability Support	http://www.ncl.ac.uk/disability.services/
Tutor's Handbook:	http://www.ncl.ac.uk/internal/documents/tutorshandbook.pdf

13. Criteria for Admission

Students wishing to be accepted on to the M.Sc. course should have a good (2ii Honours or better) first (Bachelor) degree in Engineering (any branch), Environmental Science, Physics, Geography, Mathematics, Chemistry, Geology or a similar subject. Advanced level Mathematics or equivalent is also normally required.

14. Methods of evaluating and improving the quality and standards of teaching learning and assessment

Mechanisms for review

- Subject review
- Module Review (including University Questionnaire Service returns)
- Annual Revision of Regulations
- Annual Revision of Module Outline Forms
- Annual Monitoring and Review report by Board of Studies
- Accreditation Reports
- HEFCE/QAA Reports
- External Examiners' Reports to VC

Committees with responsibilities for quality and standards

- University Teaching and Learning Committee (UTLC)
- Faculty Teaching and Learning Committee (FTLC)
- Faculty Executive Board (for resource issues)
- Board of Studies
- School Teaching and Learning Committee (STLC)
- School Planning & Resources Committee (for resource issues)
- School Postgraduate Staff/Student Committee
- Board of Examiners

Mechanisms for student feedback

- University Questionnaire Service returns
- School Postgraduate Staff/Student Committee
- Student representation on Board of Studies
- University Staff/Student Committee
- Student representation on University Teaching Committee
- Personal Tutors
- Annual Board of Studies review of module delivery

Staff Development activities

- All new staff complete Certificate in Teaching & Learning
- Seminars arranged by University Quality Standards Unit for all School staff
- Biennial Appraisal linked to staff development (Performance Development Review)

(Refs: University Internal Subject Review programme <http://www.ncl.ac.uk/internal/aqss/redirect.php>
Guidelines for Annual Monitoring and Review http://www.ncl.ac.uk/internal/aqss/qsh/annual_monitoring_and_review/
Module Outline Forms
STLC minutes
FTLC minutes
Faculty Executive Board minutes
Degree Programme Handbook: <http://www.ncl.ac.uk/internal/aqss/dpd/>
Board of Studies Minutes file, School Office
Postgraduate Staff/Student Minutes file, School Office
Board of Examiners Minutes file, School Office
(The nature of these records is such that many are not in the public domain.)

15. Regulation of Standards

Assessment rules

- The Assessment rules are given in the “PGT Progress Regulations (IV. Taught Postgraduate Masters’ Degree Entrance and Progress Regulations)” and the “PGT Exam Conventions”.
- The minimum pass mark is normally 50%.
50-59 Pass
60-69 Pass with Merit
70+ Pass with Distinction
- For certain defined conditions an award by compensation may be made even if some module marks are less than 50%.

Role of the External Examiner

The External Examiner is involved in assessment of the course. Duties will normally include:

- Approval of Examination Papers
- Vetting in-course assessments and examination scripts
- Interviewing candidates prior to the Final Examination Board
- Attending the Final Board and participating in its deliberations
- Reviewing any subsequent special cases, either by correspondence or in special circumstances by subsequent visits to Newcastle.
- Returning a confidential report to the VC.

16. Indicators of Quality and Standards

- Annual External Examiners’ Reports (School and Faculty TLC reviews)
- Annual review of student destinations
- Annual FTLC review of Board of Studies Annual Monitoring and Review report
- Annual Module and Stage Review process reported to Board of Studies
- Postgraduate Staff / Student Committee Minutes reviewed by Board of Studies
- Annual FTLC review of student feedback questionnaires
- Quinquennial UTLC “Subject Review”

(Ref: University Careers Service reports)

Warning

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve if they take advantage of the opportunities provided. More detailed information on the specific learning outcomes, indicative content and teaching, learning and assessment can be found in the Degree Programme Handbook and other University documentation.

It should be noted that there may be variations in the range of learning opportunities reflecting the availability of staff to teach them. While every effort will be made to ensure that the module or modules described in the programme specification are available, this cannot be guaranteed.

The information from this document may be selectively extracted and included in documents that are more appropriate for non-academic audiences, for example, students, intending students and employers.