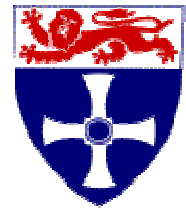


UNIVERSITY OF
NEWCASTLE UPON TYNE

FACULTY OF
SCIENCE, AGRICULTURE & ENGINEERING

DEGREE PROGRAMME SPECIFICATION

UNIVERSITY OF
NEWCASTLE



1. Awarding Institution	University of Newcastle upon Tyne
2. Teaching Institution	University of Newcastle upon Tyne
3. Final Award	MSc
4. Programme Title	MSc in Transport Engineering & Operations (5039)
5. Programme Accredited by:	Institute of Logistics and Transport
6. UCAS Code	N/A
7. QAA Benchmarking Group(s)	N/A
8. Date of production/revision	18/08/04

9. Programme Aims:

The programme aims:

- to produce postgraduates who have a coherent understanding of Transport Engineering and Operations and are able to apply it, in practice, to the planning, management and operation of transport systems with an awareness of their responsibilities to society and the environment;
- to convert good honours graduates in associated disciplines into marketable postgraduates with transferable skills who should be able to pursue a career in transportation in either the private or public sector;
- to provide opportunities for candidates to develop subject-specific skills, cognitive skills, a range of transferable skills and practical skills;
- to offer experience in the planning and execution of an extended research project in the form of a dissertation; and
- to provide a qualification which meets the designated learning outcomes at level M of the National Qualifications Framework.

10. Intended Learning Outcomes; Teaching and Learning Strategies and Methods; Assessment Strategies and Methods

A Knowledge and understanding

A successful student will have gained and be able to demonstrate knowledge and understanding of:

- A1. The advanced theoretical concepts and analytical tools of transport engineering and operations and associated empirical methods.
- A2. The transport issues that confront modern society and of the global and national settings in which

transport activities take place.

A3. Appropriate research techniques that provide:

- (i) a basic understanding of statistical analysis ;
- (ii) a working knowledge of appropriate spread-sheet software; and
- (iii) the basic skills needed to prepare a research dissertation.

A4. Transport, engineering and operations in selected areas of specialist study.

A5. A transport-related subject through a supervised period of extended study, providing a deeper understanding than that made possible by following a taught programme of study.

A6. Undertaking research, analysis or design processes given an appropriate level of supervision.

A7. Applications of IT to the selected fields of study.

A8. Management principles including professional, ethical and safety responsibilities.

Teaching and Learning Strategy

Acquisition of A1 and A2 is through a combination of lectures, seminars, tutorials, demonstrations, computer laboratory activities and visiting lecturers from industry. Outcome A3 is achieved by lectures, computer practicals and preparation and oral presentation of a research brief. A4 is achieved through a combination of lectures, seminars, tutorials, demonstrations, computer laboratory activities and visiting lecturers from industry for specialist areas of study. Acquisition of A5 and A6 is through literature reviews, data acquisition, analysis and interpretation and the preparation of a research dissertation. Outcome A7 is achieved by lectures, tutorials and where appropriate, hands-on computer exercises. Lectures, course notes and research studies teach the broader professional outcomes A8.

Assessment strategy

Formative assessment occurs through tutorial examples and coursework. The primary means of assessing factual knowledge is the closed book unseen 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 (where appropriate) by *viva voce* examination.

B Subject –specific/professional skills

A successful student will be able to:

- B1. Use relevant test and measurement equipment.
- B2. Carry out Computing Laboratory work.
- B3. Plan, execute and report a research project.
- B4. Use transport engineering IT tools.
- B5. Search and retrieve information and develop ideas further.
- B6. Present and defend economic and social arguments on issues of topical interest.
- B7. Interpret and critically evaluate the results of empirical research in transport.

Teaching and Learning Strategy

Outcomes B.1-B.3 are acquired principally through the research dissertation but are also taught in the Research Methods and specialist modules. Acquisition of B.4 is initially through lectures, developed through hand-on exercises and assignments. B.5 is introduced through the Research Methods module but

the research dissertation is the principal vehicle for acquisition. B.6 and B.7 are taught through lectures, seminars, tutorials, oral presentations, and hands-on computer experience gained through the compulsory and specialist modules.

Assessment strategy

Outcomes B.1-B.7 are not explicitly assessed, but are necessary to successfully complete coursework and project requirements.

C Cognitive skills

A successful student will be able to:

- C1. Select and apply appropriate analytical tools for modelling and assessing relevant problems.
- C2. Use engineering and operational principles in the development of solutions to practical problems.
- C3. Select and apply appropriate computer-based methods for modelling and analysing problems in transport.
- C4. Set clear objectives, assemble, process and analyse information relevant to a specialist subject, interpret and form judgements from the collected evidence and express reasoned conclusions which make a contribution to the subject.
- C5. Collect and analyse field data using basic statistical techniques and interpretation together with appropriate software.
- C6. Produce solutions to problems through the application of engineering knowledge and understanding.
- C7. Undertake technical risk evaluation.

Teaching and Learning Strategy

Where appropriate C.1-C.2 are reinforced in lectures, but learning is principally in tutorials and assignments. Outcome C.3 is initially encountered in compulsory lectures and practical classes, but is developed principally during specialist modules and research dissertations. The acquisition of C.4 and C.5 occurs through the compulsory research dissertation and Research Methods courses, but also occurs in specialist modules. C.6 is introduced in lectures and developed through tutorials, seminars, case studies and the research dissertation. Outcome C.7 is included in some specialist lectures but is primarily taught on an individual basis as part of the dissertation supervision.

Assessment strategy

Unseen and open-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 and (where appropriate) *viva voce* examination, provides evidence of the ability to carry out a research project.

D Key (transferable) skills

A successful student will be able to:

- D1. Manipulate and present relevant primary and secondary data in a variety of ways.
- D2. Use evidence-based methods in problem-solving.
- D3. Create and innovate in the solution of problems.
- D4. Communicate effectively.
- D5. Work independently and in teams in a range of situations, preparing for life-long learning.
- D6. Use IT skills, including word processing, use of spreadsheets and databases, e-mail and on-line information sources.
- D7. Manage time and resources.
- D8. Effectively learn, think and solve problems.
- D9. Support a self-motivated learning style.
- D10. Support a self-awareness to the extent of recognising his or her own limitations and knowing when to seek help.

Teaching and Learning Strategy

Outcomes D.1-D.10 permeate through all teaching and learning activities. D.1, D.3, D.8-D.10 are particularly relevant to the research dissertation.

Assessment strategy

Skills D.1-D.10 are essential to complete examination and assignments to a satisfactory standard. Outcomes D.1-D.4, D.9 and D.10 are essential to satisfactorily complete the dissertation.

11 Programme Features, Structure and Curriculum

A Programme Features

The normal undergraduate year, extending from the end of September to the middle of June, is approximately 31 weeks, arranged in three terms and currently divided into two Semesters. In contrast, the M.Sc. year occupies the full 12-month period, with the summer period (June-September) essentially constituting an additional semester.

B Programme Structure

Every M.Sc. student studies 180 credits over the academic year. The taught courses, comprising 100 credits, are taught in Semesters 1 and 2, and the 80 credits associated with the dissertation are notionally allocated to part of the second semester and the summer period.

C Programme Curriculum

1. The programme of study begins annually in September and candidates shall take modules to a total value of 180 credits over three semesters.

2. (a) Candidates shall take the following compulsory modules:

<i>Code</i>	<i>Credits</i>	<i>Semester</i>	<i>Descriptive title</i>
CIV702	(10)	1	Research Methods
CIV839	(10)	2	Transport Policy in Practice
CIV841	(10)	1	Traffic Management Techniques
CIV943	(10)	1	The Economic and Financial Appraisal of Transport Activities
CIV944	(10)	2	Management and Operation of Public Transport Systems
CIV945	(10)	1	Intelligent Transport Systems and e-Services
CIV998	(80)	2+3	Dissertation

(b) Candidates shall select modules to a value of 40 credits from the following, subject to availability and the approval of the Degree Programme Director:

<i>Code</i>	<i>Credits</i>	<i>Semester</i>	<i>Descriptive title</i>
CIV807	(10)	1	Project Management
CIV838	(10)	1	Railway Management, Economics and Planning
CIV844	(10)	2	Design of Transport Infrastructure
CIV845	(10)	2	Travel Demand Forecasting
CIV847	(10)	1	Road Safety
CIV850*	(10)	2	Management of Urban Transport in Developing Countries (<i>may not be available every year</i>)
CIV942	(10)	2	Public Inquiry into a Transport Scheme
MAR840	(10)	1	Marine Transport and Economics
MAR841	(10)	1+2	Design and Analysis of Marine Transport Systems

approval of the Degree Programme Director.

Development of specific Intended Learning Outcomes occurs through the following modules (compulsory modules in bold text, optional modules in normal, italic text)

A1	The advanced theoretical concepts and analytical tools of transport engineering and operations and associated empirical methods.	CIV702, CIV839, CIV841, CIV943, CIV944, CIV945, CIV998, CIV807, CIV838, CIV844, CIV850, CIV942
A2	The transport issues that confront modern society and of the global and national settings in which transport activities take place.	CIV702, CIV839, CIV841, CIV943, CIV944, CIV945, CIV998, CIV838, CIV844, CIV850, CIV942
A3	Appropriate research techniques that provide: (i) a basic understanding of statistical analysis ; (ii) a working knowledge of appropriate spread-sheet software; and (iii) the basic skills needed to prepare a research dissertation.	CIV702, CIV839, CIV944, CIV945, CIV998, CIV838, CIV850
A4	Transport, engineering and operations in selected areas of specialist study.	CIV702, CIV998, CIV838
A5	A transport-related subject through a supervised period of extended study, providing a deeper understanding than that made possible by following a taught programme of study.	CIV702, CIV945, CIV998
A6	Undertaking research, analysis or design processes given an appropriate level of supervision.	CIV702, CIV841, CIV945, CIV998, CIV844, CIV942
A7	Applications of IT to the selected fields of study.	CIV702, CIV841, CIV944, CIV945, CIV998, CIV807, CIV838, CIV844
A8	Management principles including professional, ethical and safety responsibilities.	CIV702, CIV945, CIV998, CIV807, CIV838, CIV844, CIV850, CIV942
B1	Use relevant test and measurement equipment	CIV702, CIV839, CIV943, CIV944, CIV838
B2	Carry out Computing Laboratory work.	CIV702, CIV839, CIV841, CIV944, CIV945, CIV998, CIV838, CIV850, CIV942
B3	Plan, execute and report a research project.	CIV702, CIV839, CIV841, CIV998, CIV844
B4	Use transport engineering IT tools.	CIV702, CIV841, CIV943, CIV945, CIV998, CIV838, CIV942
B5	Search and retrieve information and develop ideas further.	CIV702, CIV839, CIV998, CIV942
B6	Present and defend economic and social arguments on issues of topical interest.	CIV702, CIV839, CIV998, CIV838, CIV844, CIV942
B7	Interpret and critically evaluate the results of empirical research in transport.	CIV702, CIV945, CIV998
C1	Select and apply appropriate analytical tools for modelling and assessing relevant problems.	CIV702, CIV945, CIV998
C2	Use engineering and operational principles in the development of solutions to practical problems.	CIV702, CIV839, CIV945, CIV998, CIV807, CIV844
C3	Select and apply appropriate computer-based methods for modelling and analysing problems in transport.	CIV702, CIV945, CIV998

C4	Set clear objectives, assemble, process and analyse information relevant to a specialist subject, interpret and form judgement from the collected evidence and express, reasoned conclusions which make a contribution to the subject.	CIV702, CIV841, CIV998, CIV844
C5	Collect and analyse field data using basic statistical techniques and interpretation together with appropriate software.	CIV702, CIV839, CIV943, CIV945, CIV998, CIV838, CIV844, CIV942
C6	Produce solutions to problems through the application of engineering knowledge and understanding	CIV702, CIV839, CIV945, CIV998, CIV807, CIV838, CIV942
C7	Undertake technical risk evaluation.	CIV702, CIV839, CIV943, CIV998, CIV942
D1	Manipulate and present relevant primary and secondary data in a variety of ways.	CIV702, CIV944, CIV998, CIV838, CIV850, CIV942
D2	Use evidence-based methods in problem-solving.	CIV702, CIV945, CIV998, CIV942
D3	Create and innovate in the solution of problems.	CIV702, CIV839, CIV841, CIV945, CIV998, CIV838, CIV844, CIV942
D4	Communicate effectively.	CIV702, CIV839, CIV841, CIV945, CIV998, CIV807, CIV838, CIV942
D5	Work independently and in teams in a range of situations, preparing for life-long learning.	CIV702, CIV839, CIV945, CIV998, CIV942
D6	Use IT skills, including word processing, use of spreadsheets and databases, e-mail and on-line information sources.	CIV702, CIV841, CIV943, CIV944, CIV945, CIV998, CIV807, CIV838, CIV844, CIV850, CIV942
D7	Manage time and resources.	CIV702, CIV839, CIV943, CIV945, CIV998, CIV807, CIV942
D8	Effectively learn, think and solve problems	CIV702, CIV839, CIV841, CIV943, CIV945, CIV998, CIV807, CIV838, CIV942
D9	Support a self-motivated learning style.	CIV841, CIV943, CIV945, CIV998, CIV942
D10	Support a self-awareness to the extent of recognising his or her own limitations and knowing when to seek help.	CIV702, CIV998, CIV838

12 Criteria for Admission:

Candidates for the MSc are normally expected to hold at least a second-class Honours degree or its equivalent. Candidates for the Diploma will be considered on a case-by-case basis and relevant experience may be considered. Applicants whose first language is not English are normally required to hold IELTS 6.5, TOEFL 575 (paper-based) or 233 (computer-based), or equivalent.

13 Support for Students and their Learning:

Induction

The first week of the first term/semester is an Induction Week with no formal teaching. During this period all students will be given detailed programme information relating to their Stage and the timetable of lectures/practicals/labs/ tutorials/etc. In particular all new students will be given general information about the School and their course, as described in the Degree Programme Handbook. The International Office offers an additional induction programme for overseas students (see http://www.ncl.ac.uk/international/coming_to_newcastle/orientation.phtml).

Study skills support

Students will learn a range of Personal Transferable Skills, including Study Skills, as outlined in the Programme Specification.

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/teachingexcellence/support/pgtutor.htm>. In addition the University offers a range of support services, including the Student Advice Centre, the Student Counselling Service, the Mature Student Support Service, and a Childcare Support Officer, see <http://www.ncl.ac.uk/teachingexcellence/support/index.htm>.

Support for Special Needs

Support for students with special needs is provided as required and the University's Disability Support Service can be consulted where appropriate. For further details see <http://www.ncl.ac.uk/postgraduate/support/disability.phtml>.

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/postgraduate/support/acfacilities.phtml>.

All new students whose first language is not English are required to take an English Language test in the Language Centre. Where appropriate, in-session language training can be provided. The Language Centre houses a range of resources for learning other languages which may be particularly appropriate for those interested in an Erasmus exchanges. See <http://www.ncl.ac.uk/postgraduate/support/langcen.phtml>.

14 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 under Reserved Business, in the absence of the student representatives. The Board responds to these reports through Faculty Teaching and Learning Committee.

Accreditation reports

This programme is accredited by the Institute of Logistics and Transport

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.

Feedback mechanisms

Feedback to students is effected 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 programme, see <http://www.ncl.ac.uk/internal/academic-quality/qualityhome.htm#2>.

15 Regulation of Assessment:

Pass Marks

The pass mark, as defined in the University's Postgraduate Examination Conventions (<http://www.ncl.ac.uk/regulations>), is 50%.

Course Requirements

Progression is subject to the University's Postgraduate Progress Regulations (<http://www.ncl.ac.uk/regulations>) and Postgraduate Examination Conventions (<http://www.ncl.ac.uk/regulations>). In summary, students must pass 180 credits. Limited compensation down to 40% is possible and there are resit opportunities, with certain restrictions.

Common Marking Scheme

The University employs a common marking scheme, which is specified in the Postgraduate Examination Conventions (<http://www.ncl.ac.uk/regulations>), namely

Applicable to postgraduate masters programmes		Applicable to other postgraduate 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

16 Indicators of Quality and Standards:*Professional Accreditation Reports*

This programme was accredited by the Institute of Institute of Logistics and Transport in 2004.

Internal Review Reports

This programme is due for Internal Subject Review in November, 2004. See the timetable at <http://www.ncl.ac.uk/internal/academic-quality/schdlisr.doc>

Previous QAA Reports

This programme received a QAA Subject Review in October 1997 and achieved a score of 20/24.

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.

17 Other Sources of Information:

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

The Departmental Prospectus (see <http://www.ceg.ncl.ac.uk/postgrad/postgrad.htm>)

The University and Degree Programme Regulations (see <http://www.ncl.ac.uk/calendar/pdf/uniregs.pdf> and <http://www.ncl.ac.uk/calendar/sae/>)

The Degree Programme Handbook

QAA Subject Review Report