

PROGRAMME SPECIFICATION



1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	MSc
4	Programme Title	Digital Architecture
5	UCAS/Programme Code	5112
6	Programme Accreditation	N/A
7	QAA Subject Benchmark(s)	Architecture
8	FHEQ Level	7
9	Date written/revised	April 2001

10 Programme Aims

The course aims to equip students with the knowledge, skills and experience required to apply digital theories and technologies in their professional careers and to contribute to research in the field of digital architecture.

To this end, three interconnecting areas of digital architecture are examined in order to develop a strong understanding of the theory base as well as practical experience and skills in the use, customisation and development of Information and Communication Technologies (ICT). The three areas of study are:

- Digital Design: An appreciation of the impact an application of virtual environments and the role that ICT can play in the design and realisation of buildings and the built environment.
- Digital Theories: An understanding of the theory base of digital technologies and digital architecture. An appreciation of the interplay between the virtual and physical environments
- Digital Practice: Knowledge and understanding of the way that digital technologies support business and awareness of the new business models that are developing in response to these technologies

The course aims to be at the forefront of current debate on the future of architecture as well as providing knowledge and skills on innovative aspects of professional practice.

In addition, the course will equip students to design, undertake and communicate advanced research projects.

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. By the end of the degree programme, student will have:

Knowledge and Understanding

On completing the programme students should have a knowledge and understanding of:

- A1. The impact of ICT on architecture and the built environment
- A2. The theoretical basis of developments in information and communication technologies for the design of the built environment
- A3. The application of software and hardware tools and techniques to the creation and management of buildings.
- A4. Research methodologies related to ICTs in the built environment

A5. The relationships between emergent information and communication technologies and urban environments
 A6. The software tools, techniques and their application to the design, creation and use of virtual environments
 A7. The application and influence of information and communication technologies on business and practice models

Teaching and Learning Methods

Specialist knowledge and understanding (A1-A7) are primarily taught through lectures and student lead seminars. Where appropriate, teaching also takes the form of workshops and project work to promote knowledge and understanding through hands-on experience of analysis and problem solving (A3 and A5-7) Case studies also provide the opportunity for students to gain in depth knowledge and understanding

Students are encouraged and expected to undertake independent reading and study to complement and consolidate what is being taught and to allow students to broaden their individual understanding of the subject area. This independent study is seen as vital and is supported through the development of comprehensive reading lists and provision of appropriate computer technologies to allow students to carry out the independent project work required (A3, A5-7) Peer learning is promoted through group projects (A3, A5-7)

Assessment Strategy

Knowledge and understanding (A1-A7) are assessed through written coursework submissions. These employ a range of approaches including essays (A1 and A4), group and individual presentations and project work

Intellectual Skills

On completing the programme students should be able to:

- B1. Reason critically
- B2. Identify problems and develop and carry out strategies for solving them
- B3. Analyse and interpret information and critically evaluate current research and practice
- B4. Plan, conduct and report a programme of research
- B5. Evaluate designs, processes and products and propose improvements

Teaching and Learning Methods

All of the modules contribute to the development of cognitive skills (B1-5). Student-lead seminars play a particularly important role in the development of skills B1, 3 and 4 and form the basis of much of the teaching and learning in modules A (*Architecture in the Information Age*) and D (*Research Methods*). Problem solving and analytic skills (B2, 3 and 5) are developed through the project-based activities in modules B (*Emergent Digital Design Methods*), C (*Visualisation in Design*), E (*Advanced Visualisation Techniques*) and F (*Collaborative Design Methods*). The individual research project (module J) will also provide a significant contribution to the development of all cognitive skills (B1-5)

Independent reading will provide students with the opportunity to examine problem solving strategies (B2) as well as exposing them to examples of critical reasoning (B1 and 3). These skills (B1-3) will be further developed in students through their contribution to seminars in all modules. Modules with a high degree of project work (modules B, C, F and H) will require students to define and understand problems (B2), design strategies for solving them in the light of current research (B2-4), carry out the work and report the results (B1 and 4). Participation in these projects and introduction to a wide range of technologies and theories will develop evaluation skills (B5)

Assessment Strategy

Cognitive skills (B1-5) are assessed by means of submitted coursework in the form of essays, case studies and project work and by presentation of this work. Depending on the student's chosen topic, the Individual Research Project (module J) will also assess the cognitive skills (B1-5)

Practical Skills

On completing the programme students should be able to:

C1. The use of ICT in design projects C2. Designing of virtual environments C3. The modelling and analysis of aspects of the built environment C4. Simulation of aspects of building performance C5. The evaluation of ICT tools and their application and management in a business context C6. The construction, operation and management of virtual project teams C7. Software customisation and development
Teaching and Learning Methods
<p>Skills in the use of ICT in design projects (C1-4) are developed through the lectures, seminars, workshops and project work in modules B (<i>Emergent Digital Design Methods</i>), C (<i>Visualisation in Design</i>), E (<i>Advanced Visualisation Techniques</i>) and F (<i>Collaborative Design Methods</i>). Design of virtual environments (C2) forms the basis for the teaching in module F, backed up by the lectures in module B. Analysis and Simulation (C3-4) are central to the use of ICT in architecture and are developed over a wide range of modules (B, C, E and F). Skills in the application of ICT in a business context (C5, 6) are developed through the lectures, seminars, workshops and projects of modules B, C, E and F. Software customisation and development (C7) is taught mainly in module B, with additional aspects covered in the project work for modules C, E and F.</p> <p>The primary vehicle for the development of these subject specific/practical skills (C1-7) is through hands-on use of the ICT technologies involved. Initial, lecture based teaching is supplemented by supervised workshops where students are encouraged to experiment with the technologies. More advanced skills are developed particularly through the project work in modules B, C, E and F that build on knowledge and understanding of the underlying concepts developed through the lectures and seminars. Peer learning is supported in the project work through group working and the availability of a dedicated computing environment where students are strongly encouraged to work. Some or all of the subject specific skills will further developed through the Individual Research Project (module J)</p>
Assessment Strategy
<p>Subject specific and practical skills (C1-7) are assessed by means of submitted coursework in the form of essays, case studies and project work and by presentation of this work. Depending on the student's chosen topic, the Individual Research Project (module J) will also assess skills (C1-7)</p>
Transferable/Key Skills
<p>On completing the programme students should be able to:</p> D1. Structure ideas and concepts and present them orally and in writing D2. Learn independently through self-directed study and research D3. Manage time and resources D4 Work as part of a team or individually D5. Information management skills (library and other information sources) D6. Computing skills
Teaching and Learning Methods
<p>Formal teaching of key skills (D1-3, D5) is through the lectures and seminars of the research methods module (module D). Teamworking skills (D4) are developed through the group working elements of modules B (<i>Emergent Digital Design Methods</i>), C (<i>Visualisation in Design</i>), E (<i>Advanced Visualisation Techniques</i>) and F (<i>Collaborative Design Methods</i>). Skills for individual working (D2, D4) are developed through the individual coursework in all modules. Information management skills are taught both for Research Methods (module D) and in a business context in module H (<i>Collaborative Design Methods</i>). Computing skills (D6) are fundamental to the learning outcomes of the course and will be extensively developed through the lectures, workshops and project work in modules B, C, E and F. The Individual Research project (module J) provides an opportunity for students to further develop key skills (D1-6)</p> <p>Students are encouraged to develop key skills (D1-3, D5) through participation in the</p>

seminars for module D. Participation in seminars for modules such as A (*Architecture in the Information Age*) and B *Emergent Digital Design Methods* will develop skills in independent learning (D2), and the structuring and presentation of ideas (D1). Undertaking project work for modules B, C, E and F will require students to manage their time (D3), work as part of a team and individually (D2, D4) and develop their computing skills (D6). The provided computing environment and available software will further support students in the development of their computing skills (D6) The Independent Research Project (module J) also plays an important role in the development of key skills (D1-6) for example through the design and planning of the research (D2, D3), literature search and review (D1, D5, D6) and conducting the research (D2, D3, D5, D6) and reporting the results (D1, D6)

Assessment Strategy

Key skills (D1-6) are indirectly assessed by coursework in the form of essays, case studies and project work and by presentation of this work. Computing skills (D6) will be assessed by the project work for modules B, C, E and F, and teamworking (D4) is also assessed by this project work. The coursework for module D (Research Methods) assesses key skills D1-3, D5) All key skills (D1-6) are assessed as part of the Individual Research Project (module J)

12 Programme Curriculum, Structure and Features

Basic structure of the programme

The course structure is outlined below. Students must take a total of 180 credits, which comprise 120 credits of taught modules and 60 credits of independent research project. Candidates must take all 80 credits of core modules and a further 20 credits during semester 1 and 20 credits during semester 2, by selecting modules from the School of APL 'Special Topics' list. These are related to Masters level programmes. Available modules will be listed every year on the programme's handbook. Further modules in English language might be available from the University Language Centre Students who do not complete the individual research project, but successfully complete 120 credits of taught modules will be awarded a Postgraduate Certificate in Digital Architecture

The curriculum is designed to provide a systematic progression from key computing skills and a core theoretical base in semester one to areas of more specialised study in the second semester that will inform and focus the area of individual research projects.

The curriculum has been designed to be informed by (and inform) the research expertise of the School, and in particular of the members of staff responsible for delivery of the course.

Module	Semester One	Credit Value
A	Architecture in the Information Age	10
B	Emergent Digital Design Methods	20
C	Visualisation in Design	10
D	Research Methods	10
	Semester Two	
E	Advanced Visualisation Techniques	20
H	Collaborative Design Methods	20
	Summer Vacation	
J	Individual research Project	60

In addition to the development of optional modules in future years it is intended to deliver individual modules as Continuing Professional Development Certificates to practitioners who are unable to commit time to full or part time study but wish to develop their skills through a combination of distance learning.

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

The MSc in Digital Architecture is an innovative and timely addition to postgraduate teaching in the built environment field. The course is unique in offering students the opportunity to

understand and become skilled in a board range of information and communication technologies (ICT) and theories in the context of architectural practice, construction project teams, the digital building and the digital city. The course will examine ICT as an influential factor in changes in society and in the theory and practice of architecture and the resultant built (and virtual) environment.

The course is modular, and combines a variety of teaching and learning strategies to suit the range of subjects covered. Theoretical modules will mainly take the form of a lecture/seminar based teaching and learning, and this is combined with extensive “hands-on” experience in the form of workshops and project work in those modules that examine technologies and new working practices. To support this, a shared computing facility has been established within the Architecture Building to provide students with a suitable study environment (a Digital Studio). In line with the aims of the programme, all coursework will be submitted electronically, and extensive use will be made of ICT in the day-to-day communication requirements of the course.

The majority of the teaching will be based within the Digital Studio, providing students with the opportunity to interact with Research Associates and Academic Staff working in the field. Students are also able to draw on the resources of the School of Architecture Planning and Landscape and the wider University. Students are encouraged to be innovative in their choice of Individual research Projects and to collaborate with academic or industrial partners. Publication of research results is actively encouraged and supported.

As far as possible, the programme structure and timetabling has been designed to ensure that teaching is delivered in “blocks” of time rather than scattered across a teaching week, This will be particularly appropriate to the needs of part-time students who are also working. This means that for the most part, all of the teaching for a particular module will take place on a single day in any given week and the timetabling is also coordinated across modules so that teaching days run consecutively

Programme regulations (link to on-line version)

<http://www.ncl.ac.uk/regulations/programme/2009-2010/documents/DigitalArchitectureMSc.pdf>

13 Criteria for admission

Entry qualifications

- a) Candidates should hold a good first degree in a Built Environment-related discipline, although candidates with computing-related degrees will be considered if they have a clear interest in the Built Environment. Normally a 2:1 Upper Second Class degree will be the minimum entry requirement, although candidates without this qualification may be considered if they hold notable professional experience in Built Environment related professions
- b) Accelerated route for Newcastle University's B.Arch former students/graduates:

As an exception to the general Accreditation of Prior Learning (A.P.L) policy of the University, former students/graduates of Newcastle University's B.Arch programme will be allowed to register for the Master of Science in Digital Architecture with the following exemptions:

- Up to 60 credits of core modules, provided these have been successfully passed – with a mark not lower than 50 – during the course of the B.Arch
- An additional 20 credits, provided these have been successfully passed – with a mark not lower than 50 – during the course of the B.Arch, on the basis of the extensive range of SAPL modules already taken by B.Arch students.

Admissions policy/selection tools

A minimum of a second-class Honours degree or equivalent, preferably in a design-related or ICT subject. An upper-second-class Honours degree is preferred. Candidates with non-traditional

qualifications and/or significant work experience in the field should contact the School for further advice

Non-standard Entry Requirements

(N/A)

Additional Requirements

(N/A)

Level of English Language capability

Applicants attention is also drawn to the University policy regarding language skills. Applicants whose first language is not English require IELTS 6.5 or TOEFL 575 (paper-based) or 233 (computer-based)

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.

The School of Architecture, Planning, and Landscape provides each student with a specific academic staff member for pastoral and academic advice and guidance. Formal meeting with tutors are held at least once a term during the taught part of the course. All students have personal and e-mail access to their tutors.

Each student is also assigned at least one academic member of staff to supervise his/her final research project and dissertation

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>

Welfare Officer

The Welfare Officer of the Student Union can help students with details of how to apply for hardship funds and he/she can be contacted on (7) 6471 or by email on Welfare.Union@ncl.ac.uk

Facilities

Library Services

The School Library is located on floor one of the main Architecture building. The library is open from 9.30 – 5.30. Most of the material in the library is either journals or what we call grey material that is reports, government circulars, guidance from the RTPi, etc. but not books. A small collection of text books is kept in the library and these are available on reference or overnight or four hour loans only. The library also has CD Rom and IT links to the main university catalogue.

Computing

Each student will have access to a high-specifications workstation provided on a hot-desking basis and equipped with the specialist software needed to tackle the most technically demanding tasks in the course. All students of the University of Newcastle can also access the public networked computer clusters available campus-wide.

Health and Safety Policy

Health and Safety issues for students on this course are in line with those in the current Architecture, Planning and Landscape guides and there are no special considerations for 3-4 Claremont Terrace.

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-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 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

16 Regulation of assessment

Pass mark

The pass mark is 50 (Postgraduate programmes)

Course requirements

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.

Progression Requirements (specific to MSc)

- Candidates will be allowed to proceed to the dissertation only if they have passed the Research Methods module (ARC818)
- Candidates who have failed Research Methods will not proceed to dissertation and will not be awarded the MSc degree, but might still be considered by the Board of Examiners for the award of a Postgraduate Diploma, on the basis of their performance in the other taught components of the programme.

Submission of dissertation

- The precise deadline for the submission of the dissertation each year will be fixed by the Degree Programme Director and communicated to students during the induction week.

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		Summary description applicable to postgraduate Certificate and Diploma programmes	
<50	Fail	<50	Fail
50-59	Pass	50 or above	Pass
60-69	Pass with Merit		
70 or above	Pass with Distinction		
<p><i>Role of the External Examiner</i></p> <p>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:</p> <ul style="list-style-type: none"> 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/postgraduate/>)

The School Brochure

The University Regulations (see <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
ARC8015	Compulsory	A1, A2,A5	B1, B3	C1	D1-4
ARC8016	Compulsory	A1,A2,A3,A5,A6,A7	B1,B2, B3, B5	C1, C3, C4, C5, C7	D 1-5
TCP8911	Compulsory	A4	B4		D 1-4
ARC8027	Compulsory	A1,A2,A3,A5,A6,A7	B1,B2, B3, B5	C1, C2, C3,C7	D 1-5
ARC8033	Compulsory	A1,A2,A3,A5,A6,A7	B1,B2, B3, B5	C1,C3,C5,C6	D 1-5
ARC8034	Compulsory	A1-7	B1-7	C1-7	D 1-5