PROGRAMME SPECIFICATION	

1	**Awarding Institution**	Newcastle University
2	**Teaching Institution**	Newcastle University
3	**Final Award**	MA
4	**Programme Title**	Design and Emergence
5	**UCAS/Programme Code**	5112
6	**Programme Accreditation**	N/A
7	**QAA Subject Benchmark(s)**	Architecture
8	**FHEQ Level**	7
9	**Date written/revised**	January 2013

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 computational methods in design. The course introduces core theories and design practices associated with the use of computational tools methods in design. The emphasis of the course is on merging digital and physical techniques including digital manufacturing and generative design. To this end the course is structured around two thematic cores and focused on design studios.

The course has two thematic cores represented by different modules in Semester One and Two:

- Semester 1 introduces core software tools in computational design with an emphasis on developing programming skills, specific application skills, design and research methods. The first semester also investigates the role of the designer in an era where computational techniques are radically shifting design practices.
- Semester 2 introduces core hardware skills and enables the student to develop their own specialisms through the addition of an optional module from other programs of study. The semester also introduces key concepts in Human Computer Interaction and Interaction Design on the context of new products and services.

The course aims to be at the forefront of current debate on the future of design in the context of new computational methods and the merging of digital and physical systems and environments.

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

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. Design practices associated computational methods on design.
A2. Theories of emergence and complexity in design.
A3. The application of software and hardware tools for generative design.
A4. The application of software and hardware tools for interactive design.
A5. Research methodologies related design practice and the use of design as a research method.
A6. Theories on the relationship between digital and physical systems, objects and environments – both social and technical aspects.

Teaching and Learning Methods

Specialist knowledge and understanding (A1-A6) are primarily taught through studio based workshops, hands on experience and tutorials based on design projects. Where appropriate, teaching also takes the form of lectures and seminars (A2, A5, A6).

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. Peer learning is promoted through group projects (A1, A3).

Assessment Strategy

Knowledge and understanding (A1-A6) are predominantly assessed through design project work with written components constituted as design thesis reports. In addition essay submissions will be required (A5) and oral presentations used throughout (A1-A6).

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
B6. Use design as an experimental research practice.

Teaching and Learning Methods

All of the modules contribute to the development of skills (B1-6). The emphasis on project led work and design teaching encourages analytical and critical skills (B1-B3) as well as general organisation and planning (B4). Critique and feedback given as part of studio practice also develops critical and evaluative skills (B5, B6). Specific Modules will develop, as follows:

A: Emergent Design Methods
Through the initiation of a student led design project, supported through tutorials and workshops and a key lectures on theories and principles of emergent and generative design (B2, B4, B5, B6)

B: Programming for Design
Workshop based tasks and reading seminars. Assessed portfolio and addition to a written report. (B1, B2, B5)

C: Research through Design
Lecture and seminar based course of research methods related to experimental design practice. Assessed through a written essay. (B1-B4, B6)

D: Interaction Design
Studio based design project supported by workshops and design tutorials and assessed through final presentation and both visual and textual design portfolios. (B1-B6).

E: MA Design Research Project
An independent study project supported by supervisions (both group and individual) led by the student and assessed through final review and submitted portfolio assessment. (B1-B6)

Assessment Strategy

Key assessments throughout the course test for the Intellectual Skills described above and there is a spread of written coursework (modules C, E) skills developing technical portfolios (B) and importantly design portfolios (A, D, E).

Practical Skills

On completing the programme students should be able to:

C1. The use of computational methods in design projects.
C2. Developing and customising computer software.
C3. Developing and customising computer hardware.
C4. Design Communication and Visualisation.

Teaching and Learning Methods

Skills in the use of computational methods (C1-4) are developed through the lectures, seminars, workshops, self teaching material, provided online and project work in modules A (*Emergent Digital Design Methods*), B (*Programming for Design*), D (*Interaction Design*). This work is synthesises through the supervised but student lead module E (*MA Design Research project*). While in all cases the emphasis is on applied skills for design (rather than simply developing the skills in their own right). The modules are all supported by skills specific workshops and a tutorial system which enables student directed self study.

Assessment Strategy

Modules A, B, D and E are all assessed using project submissions with modules B, D and E also being subject to oral presentation and review. Assessment criteria in each of these modules (including A) contains references to evidence of technical compentence and design communication.

Transferable/Key Skills

On completing the programme students should be able to:

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. General Computing skills

Teaching and Learning Methods

Formal teaching of key skills (D1-3, D5) is through the lectures and seminars of the deign research methods module (module C). Teamworking skills (D4) are developed through the group working elements of modules A (*Emergent Digital Design Methods*) and D (*Interaction Design*), E (*Advanced Visualisation Techniques*). Skills for individual working (D2, D4) are developed through the individual coursework in all modules. Information management skills are taught both for Design Research Methods (module C) and in a business context in module H (*Collaborative Design Methods*). 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 A, B, D.
The Individual Research project (module E) provides an opportunity for students to further develop key skills (D1-6)
Students are encouraged to develop key skills (D1-3, D5) through participation in the seminars for module D. Participation in seminars for modules such as a (Emergent Digital Design Methods), B (*Programming for Design*) will develop skills in independent learning (D2), and the structuring and presentation of ideas (D1). Undertaking project work for modules A, B, D and E 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 E) 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 A, B, D and E, and teamworking (D4) is also assessed by this project work. The coursework for module C (Research through Design) assesses key skills D1-3, D5) All key skills (D1-6) are assessed as part of the Individual Research Project (module E)

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 individual research project. Candidates must take all 60 credits of core modules during semester 1 and a further 40 credits of core module in semester 2 with additional 20 credits of optional modules from other programmes within the school. Available modules will be listed every year on the programme's handbook. Further modules in English language might be available from INTO. Students who do not complete the individual research project, but successfully complete 120 credits of taught modules will be awarded a Postgraduate Diploma

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	Emergent Design Methods	20
B	Programming for Design	20
C	Research through Design	20
	Semester Two	
D	Interaction Design	40
	Additional Student Selected Module	20
	Summer Vacation	
J	Individual research Project	60

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

Digital methods of design have significantly changed the role of the designer in a range of design processes. Contemporary discourse on architecture and other design fields reflects this change through design methods which place the designer in the role of rule makers for processes which are dynamic and emergent. To this end designers are increasingly expected to understand a wide range of digital design methods in depth including programming, advanced modelling and fabrication. The change in the course structure reflects this shift and provides foundational studies of some key methods and concepts in the context of design practice. The course will enable students from a range of design background's to develop their own practice to include the critical use of a range of digital tools to create new objects, services, systems and environments which are dynamic and responsive and have been devised through processes which make use of emergent and complex phenomena.

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 Building Science to provide students with a suitable study environment . 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 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 (wherever possible)

Programme regulations (link to on-line version)

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

13 Criteria for admission

Entry qualifications

a) Candidates should hold a good first degree in a Design-related discipline, although candidates with computing-related degrees will be considered if they have a clear portfolio shown design proficiency. 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 Design related professions.

b) Accelerated route for Newcastle University's M.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 M.Arch programme will be allowed to register for the MA 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 MArch

Non-standard Entry Requirements

A PDF (or similar) portfolio of work will be requested as part of the application.

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

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 Development Centre (further information is available from the Robinson Library).

Academic and Pastoral support
Each undergraduate and taught postgraduate student will be assigned a personal tutor.*
A personal tutor is one part of a wider network of advice and guidance available to students to support their personal and general academic development. The module leader acts as the first point of contact for subject-specific academic advice. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Student-Staff Committee, and/or at the Board of Studies. Within the academic unit, students may also receive additional academic and pastoral advice from a range of other student-facing staff including degree programme directors, dissertation/project supervisors, and administrative support staff.
*Arrangements may vary for students taking special types of provision.

The University also offers a wide range of institutional services and support upon which students can call, such as the Writing Development Centre, Careers Service and Student Wellbeing Service. This includes 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 Student Union 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 team 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-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.

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 Student-Staff Committee and/or the Board of Studies. New modules and major changes to existing modules are subject to approval by the Faculty Learning, Teaching and Student Experience Committee.

Programme reviews
The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Learning, Teaching and Student Experience Committee. The FLTSEC takes an overview of all programmes within the Faculty and reports any Faculty or institutional issues to the Faculty Learning, Teaching and Student Experience Committee.

External Examiner reports
External Examiner reports are considered by the Board of Studies. The Board responds to these reports through Faculty Learning, Teaching and Student Experience Committee. External Examiner reports are shared with institutional student representatives, through the Student-Staff Committee.

Student evaluations
All modules, and the degree programme, are subject to review by student questionnaires. Informal student evaluation is also obtained at the Student-Staff 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 Student-Staff Committee and the Board of Studies.

Faculty and University Review Mechanisms
Every six years degree programmes in each subject area undergo periodic review. This involves both the detailed consideration of a range of documentation, and a review visit by a review team (normally one day in duration) which includes an external subject specialist and a student representative. Following the review a report is produced, which forms the basis for a decision by University Learning, Teaching and Student Experience Committee on whether the programmes reviewed should be re-approved for a further six year period.

Accreditation reports

Additional mechanisms

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 and Examination Conventions for Taught Masters Degrees. There are reassessment opportunities, with certain restrictions. Limited compensation up to 40 credits of the taught element and down to a mark of 40% is possible for candidates who commenced their programme in 2013/14 or earlier. For students starting their programme in 2014/15 or later, no compensation is possible.

Progression Requirements (specific to MA)

- Candidates will be allowed to proceed to the dissertation only if they have passed the Research through Design module (ARC8018)
- Candidates who have failed ARC8018 will not proceed to dissertation and will not be awarded the MA 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		

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: http://www.ncl.ac.uk/postgraduate/

The School Brochure: http://www.ncl.ac.uk/marketing/services/print/publications/ordering/

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.

Annex

Mapping of Intended Learning Outcomes onto Curriculum/Modules

		Intended Learning Outcomes			
Module	**Type**	**A**	**B**	**C**	**D**
ARC8016	Compulsory	A1,A2,A3	B2, B4, B5, B6	C1, C2	D 2-6
ARC8028	Compulsory	A1, A2, A6	B1, B2, B5	C1-C4	D 1-6
ARC8039	Compulsory	A1, A2, A4, A6	B1-B6	C1, C3	D 1-6
ARC8018	Compulsory	A5	B1-4, B6	C4	D 1-5
ARC8043	Compulsory	A1-6	B1-6	C1-4	D 1-6