Architectural Association
School of Architecture

AA PROGRAMME GUIDE

POSTGRADUATE MASTER OF ARCHITECTURE (MArch)

2024–2025

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SECTION 1: THE SCHOOL
ARCHITECTURAL ASSOCIATION SCHOOL OF ARCHITECTURE

1.1 THIS GUIDE / WHERE WE ARE

The purpose of this Programme Guide is to provide information regarding the way in which the School and its programmes are organised. It also provides an introduction to terms and definitions, common principles of content and assessment, the way that the programmes are structured, how each Course is organised, credited, and regulated, and what you will be expected to do.

Other documents you will find essential in orienting yourself within the School include the following:

- The AA School Academic Regulations
- The AA School Quality Manual
- The Programme Handbook

Our principal buildings, where most of the academic programmes are based, are at 32-39 Bedford Square, 4 and 16 Morwell Street and 1 and 1A Montague Street in Bloomsbury, Central London. The Design and Make Programme is located in AA's Hooke Park, in Dorset.

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1.2 ACADEMIC ORGANISATION AND MANAGEMENT

Overall Academic Organisation

The AA School of Architecture is an independent school governed by the Architectural Association (Inc.). It consists of c. 900 full-time students, who study in the Foundation, Intermediate, Diploma and Postgraduate programmes. The AA School is made-up of four distinct parts:

- A one-year Foundation Programme for students contemplating a career in architecture or related arts subjects. The Foundation Award in Architecture, Art and Design is separate to and does not form part of the 5-year full-time course in architecture.

- The Intermediate and Diploma Programmes offering the 5-year full-time course in architecture:
  - The AA Intermediate Programme leading to the Bachelor of Arts (Honours) and providing exemption from ARB/RIBA Part 1 after 3 years of full-time study (please note that students that complete the programme after June 2027 will receive RIBA Part 1 only);
  - The AA Diploma Programme leading to the Master of Architecture (MArch) and providing exemption from ARB/RIBA Part 2 after 2 years of full-time study.

- The postgraduate programmes comprising 11 distinct programmes of advanced full-time and part-time studies:
  - 10 taught Master level programmes (PGDip/MA/MSc/MArch/MFA/Taught MPhil)
  - A PhD degree. The AA is an Affiliated Research Centre (ARC) of the OU for the delivery and validation of the PhD degree.

- The AA Professional Practice and Practical Experience Examination leading to exemption from the ARB/RIBA Part 3 Examination, the entry requirement to professional registration as an architect. The course and examination are open to anyone who has successfully obtained their Part 1 and Part 2 qualifications (or equivalency from overseas schools of architecture) and also to qualified practitioners for the purpose of Continuing Professional Development.

Enhancing Quality of Learning: Reviews and Monitoring

All programmes in the AA School are subject to systematic internal and external review on a regular basis. This includes review by the School's Academic Committee and Board (see details below), annual monitoring and periodic review for each programme, annual feedback from External Examiners, student feedback as well as annual and periodic review from the School's professional bodies and validation partners the Open University, ARB and RIBA.

Academic Governance

The Academic Board (AB) is the sovereign academic body charged with responsibility for the academic governance of the AA School and its programmes of study. It is chaired by the Director of the AA School. The Academic Board delegates responsibilities to, and monitors the progress, effectiveness and recommendations of the AA School's Academic Committee (AC). The Academic Board demonstrates its accountability to the AA Council by submission of quarterly reports and an annual report.

SECTION 2: DEGREE SPECIFICATION

2.1 POSTGRADUATE MArch DEGREE SUMMARY INFORMATION

Awarding body	Architectural Association School of Architecture	
Partner institution(s)	N/A	
Location of Study/campus	36 Bedford Square, London WC1B 3ES Except for Design and Make located at: Hooke Park, Beaminster, Dorset DT8 3PH	
Professional, Statutory and Regulatory Bodies	Office for Students / QAA	
Award and titles	**Award**	**Title**
Final award	Postgraduate Master of Architecture (MArch)	PG MArch in Architecture and Urbanism (DRL) PG MArch in Design and Make PG MArch in Emergent Technologies and Design PG MArch in Housing and Urbanism PG MArch in Landscape Urbanism PG MArch in Sustainable Environmental Design
Credits	180	
Intermediate Award	N/A	
FHEQ Level	7	
	Duration of study (standard)	**Maximum registration period**
Full-time	16 months (4 terms)	28 months
Sandwich	N/A	N/A
Part Time	N/A	N/A
Distance	N/A	N/A
Start date for programme	September 2025	
Course codes/categories		
UCAS code	N/A	
CATS points for course	N/A	
QAA Subject Benchmark	Architecture 2020	
Admissions agency		
UCAS	N/A	
Direct to School	✓	
Admissions criteria		
Requirements	Refer to AA School Academic Regulations	
Language	Refer to AA School Academic Regulations	
Contacts		
School Registrar	Belinda Flaherty	
Programme Heads	Theodore Spyropoulos (Architecture and Urbanism (DRL)) Kate Davies and Emmanuel Vercruysse (Design and Make) Milad Showkatbakhsh (Emergent Technologies and Design) Jorge Fiori and Lawrence Barth (Housing and Urbanism) Jose Alfredo Ramirez and Eduardo Rico Carranza (Landscape Urbanism) Paula Cadima (Sustainable Environmental Design)	

Examination and Assessment	
External Examiners 2024-2025	Winka Dubbeldam, Costas Grigoriadis (Architecture and Urbanism (DRL)) Sheryl Boyle, Kai Strehlke (Design and Make) Sean Hanna, TBC (Emergent Technologies and Design) Keith Bradley, Paul Vermeulen (Housing and Urbanism) Luis Callejas, Billy Fleming (Landscape Urbanism) Irene Gallou, Rosa Schiano-Phan (Sustainable Environmental Design)
Examination Board(s)	External Examiners, Programme Heads, School Director, Head of Teaching (Chair), Head of Learning, School Registrar (Administrator)

Approval/review dates	**Approval date**	**Review date**
Programme Specification Validation	May 2020, revalidated July 2024	July 2029

2.2 POSTGRADUATE MArch PROGRAMME STRUCTURE

PG MArch programmes are delivered in two phases. Phase 1 is delivered over two academic terms of taught courses and studio design work and Phase 2 over the third and fourth terms for the production of the design thesis project.

PG MArch Programmes consist of 180 credits at FHEQ Level 7, each credit equating to approximately 10 learning hours. The credits are split between different modules of varying credit values and submissions.

2.3 DEGREE CREDIT FRAMEWORK

GENERAL POSTGRADUATE MArch CREDIT FRAMEWORK 16 months – 180 Credits	
Core Studio / Thesis	100 credits
Core Module 1	20 credits
Core Module 2	20 credits
Core Module 3	20 credits
Core Module 4	20 credits
	180 credits
For programme specific credit frameworks please refer to the programme pages below	

2.4 TEACHING, LEARNING AND ASSESSMENT

Teaching and Learning

The first three academic terms of taught courses for PG MArch programmes consist of lectures, workshops, seminars and writing workshops, with submissions required for each module. The fourth term is devoted to the individual work needed to complete the studies.

Evaluating and Improving Quality/Quality Indicators

AA Academic Committee / Academic Board	Annual Monitoring Reports are submitted to the Academic Committee each September, reflecting on examiner reports, student and staff feedback, and student progression and achievement data. The Academic Committee then reports findings to the Academic Board. Refer to AA School Quality Manual for further detail.

Professional Accreditation and Validation	Revalidation for the PG MArch takes place every 5 years Next revalidation: July 2029 Refer to AA School Quality Manual for further detail

Assessment

All submissions are assessed and marked by two or more members of the programme's regular academic staff and confirmed by the Internal Assessment Board. Marks and feedback are provided to students within 15 working days/3 weeks of initial submission. This timeframe is not inclusive of closure weeks. In exceptional circumstances where this timeframe is not met, students will be informed of when marks and feedback will be released at the earliest opportunity. Student work is then reviewed by the PG MArch External Examiners, whose role is to ensure fair and objective marking and the maintenance of high academic standards across the School's PG MArch programmes. The PG MArch Examination Board has the responsibility for confirming the final marking of all submitted work and decisions on distinctions and resubmissions.

Marking of all course work is on a scale of 0–100% with a pass mark of 50% and grading as shown below:

80% or above	Distinction
70–79%	High Pass
50–69%	Pass (Low Pass = 50%)
49% or below	Fail

To qualify for the PG MArch, students must attain the 50% threshold mark on both the coursework average, and on the final project average mark. An overall final mark is then calculated as the weighted average of coursework and Dissertation/Design Thesis. Large differences (of more than 10 percentage points) in the marking of the assessors are moderated by the Programme Head or an appointed assessor from the Programme staff when necessary.

Grading Outcomes and Criteria

Distinction: Demonstrates an exceptional level of achievement overall, significantly exceeding the assessment criteria required to attain a Pass. The submission is complete under the requirements of the brief set. Coherence of thought is expressed throughout the work, with an exhaustive appreciation of topic and a rigorous application of critical reflection and insight. Developmental and final work is documented in a highly effective manner in a well-structured and skilfully presented submission.

High Pass: Demonstrates a high level of achievement overall, exceeding the assessment criteria required to attain a Pass. The submission is complete under the requirements of the brief set. Coherence of thought is articulated throughout the work, with a comprehensive appreciation of topic and a thorough application of critical reflection and insight. Developmental and final work is documented clearly in a coherently structured and well-presented submission.

Pass: Demonstrates a good level of achievement overall, meeting all aspects of the assessment criteria required to attain a Pass. The submission is complete under the requirements of the brief set. Coherence of thought is evidenced throughout the work, with an appreciation of topic and an appropriate level of critical reflection and insight. Developmental and final work is documented clearly in a suitably presented submission.

Low Pass: Work attaining the standard of Pass, but which has previously been assessed as Fail and/or has been submitted after the advertised date/time. Low Pass is capped at 50%.

Fail: Unsatisfactory level of achievement overall, which fails to meet all aspects of the assessment criteria required to attain a Pass. The submission is incomplete under the requirements of the brief set. The work is assessed as being incoherent, demonstrating little appreciation of topic, development or effort. The submission is insufficient in quantity and demonstrates a lack of engagement. An appropriate level of critical reflection and insight is not evidenced. Developmental and final work is not documented to an appropriate level of clarity, or presented to a suitable standard. This assessment is also the automatic result of failure to

meet minimum attendance requirements. A submission receiving a Fail assessment can only achieve a Low Pass outcome upon successful resubmission. Students who have no further opportunity to undertake repeat studies are asked to leave the School.

2.5 AWARD CLASSIFICATION

The PG MArch degree is awarded as either:

- A pass.
- A 'Distinction' when the overall final mark is 80% or higher.

Other grading from coursework is registered in the School's database and is available on transcripts but do not appear on certificates.

2.6 AA MASTERS TO PhD PATHWAY

Upon successful completion of Master's study, graduates from the MA, MSc, PG MArch, MFA and Taught MPhil programmes are given the opportunity to develop their Master's thesis into a proposal to apply for the AA PhD programme. Applications to the PhD through this pathway can be considered for commencement in the academic year immediately after the student's graduation from their Master's programme.

2.7 LEARNING SUPPORT

Every student has continuous access to a design studio with storage space, along with access to all of the AA School's facilities at Bedford Square in London and in Hooke Park, Dorset. Introductory sessions are provided by the relevant academic resources departments at the beginning of the academic year to all students.

On-site resources at Bedford Square include a large wood and metal workshop, a model making workshop for materials such as clay and plastics, a digital prototyping lab, an audio-visual lab, a digital photography studio, an IT lab with both Mac and PCs, a drawing materials and print shop, the AA bookshop, AA library and AA archives. The AA also has its own bar and restaurant at Bedford Square.

Hooke Park in Dorset is the AA's satellite campus that hosts short residential workshops for visiting groups of students from throughout the school. Hooke Park is a 150-hectare working forest inside that provides the primary source of timber for student-led construction projects and also has large workshops, an IT lab, catering facilities and accommodation for students visiting from London.

The AA Writing Centre supports students in the development of their written communication skills and helps to strengthen reading, critical research and creative writing capabilities across all programmes and year groups.

AA Wellbeing offers students confidential, one-to-one wellbeing support and workshops. The team is available to explore students concerns, anxieties and emotional difficulties to support their wellbeing and academic progression. Difficulties may include the effects of bereavement, loss, lack of confidence, mood regulation, relationship difficulties or managing mental health.

The AA's London based Public Programme is an extensive series of public events dedicated to contemporary architectural culture: exhibitions, members' events, lectures, seminars and conferences, along with regular book launches hosted by the AA bookshop. Evening lectures are available online to view at Hooke Park. A weekly published school events lists is published through the communications studio.

School-wide facilities and resources are described in more details on the AA Website.

SECTION 3:

PG MArch IN ARCHITECTURE AND URBANISM (DRL)

3.1 PROGRAMME INTRODUCTION

The Design Research Laboratory (DRL) is a 16-month, post-professional design research programme at the Architectural Association – School of Architecture, leading to a Master of Architecture and Urbanism (MArch) degree.

Our world-renowned lab has been at the forefront of design experimentation since its founding in 1997, pioneering advanced methods in design, computation, and manufacturing. Championing an unapologetic belief that design and discourse permeate all aspects of life, we see architecture as a framework to explore, invent, and respond to the challenges of today. It is a pursuit of an adaptive and enabling architecture that can evolve with us. Our programme follows an evolving framework of three-year research cycles that investigate architecture and urbanism from the city scale to the nanoscale. Led by innovators in architecture, design, and engineering, DRL embraces an interdisciplinary approach that extends beyond architecture, fostering collaborations with leading research institutions and companies.

Participation is at the heart of this project. Self-organised teams of international researchers come to our lab to collaborate on complex problems that demand progressive, shared ideas to construct our collective future. In this expanded field, architecture is understood as a spatial framework that challenges norms and habitual tendencies that limit possibilities. The aim is to offer more and examine architecture as a mode of enquiry that enables both social and material agency. Our architecture is a continuous work in progress, evolving daily. The lab remains a hub of cooperation and curiosity, dedicated to cultivating the next generation of architects who will actively shape and influence the field. It emphasizes the teaching and learning of knowledge and skills associated with the making of comprehensive and innovative architectural design projects and their relationship to urbanism, with a focus on contemporary city settings.

3.2 AIMS

The programme aims to develop the learner’s interest, knowledge, and skills in the advanced architectural design, including the relationship of contemporary architectural projects to urban settings. Emphasis is placed upon learning to develop forward-thinking design concepts, skills and knowledge related to the making of architectural design proposals, in a team–based studio setting using innovative design tools. Participants in the programme come from around the world with considerable prior academic and professional training from their home countries. Upon completion graduates re–enter professional architectural practices within notable practices across the world, with many opting to teach in leading architecture schools around the world.

3.3 LEARNING OUTCOMES

INTENDED LEARNING OUTCOMES: PG MArch in Architecture and Urbanism (DRL); FHEQ LEVEL 7	
Learning Outcomes 'LO'	Aligned to the Framework for Higher Education Qualifications (FHEQ) and QAA Subject Benchmark (Architecture), on successful completion of the MArch in Architecture and Urbanism (DRL) students will be able to:
A	**Knowledge and Understanding**
A1	The relationship of contemporary architectural design and urbanism.
A2	Current developments in contemporary design theories, practices, and their discourses.
A3	Current developments in design tools and technologies.
A4	The team–based development of comprehensive design proposals.
A5	Relating theoretical interests and design concepts to specific design methods, techniques and outcomes
A6	Principles for negotiating today's advanced, networked, design systems.
A7	Research into appropriate contextual, conceptual, critical and technological precedents, methodologies, practices and tools is synthesised into the design process, allowing for creative decision-making, inventive design strategies and experimentation.
B	**Intellectual Skills**
B1	Apply the skills needed for academic study and enquiry.
B2	Direct and evaluate the development of comprehensive design proposals.
B3	Synthesise information constraining specific design projects and goals.
B4	Utilise design problem–solving skills.
B5	Relate specific design tools and media to personal design goals and interests.
B6	Identify, analyse, and evaluate significant contemporary design projects and innovation.
B7	Demonstrate criticality and independent learning skills, the ability to work in group, in continuing professional and academic development.
C	**Professional Practical Skills**
C1	Undertake skilled, competent, comprehensive architectural design projects.
C2	Document and communicate innovative design ideas and techniques.
C3	Make judgments and evaluate contemporary design projects, problems, and results.
C4	Reflect upon design results and relate design outcomes to contemporary architectural practice.
C5	Communicate and negotiate personal design interests and goals to team–based design development.

C6	Utilise and operate advanced design media, systems, and tools.
C7	Communicate effectively in structured way through a range of considered methods and visual, verbal and written skills.
D	**Transferable Skills**
D1	Communicate effectively with a wide range of individuals, including team members and outside critics.
D2	Evaluate individual academic and professional performance in the design studio.
D3	Manage the progressive refinement and development of design projects.
D4	Relate final project outcomes to initial design thesis proposals, interests, and goals.
D5	Utilise design problem–solving skills in a variety of practical situations.
D6	Take personal responsibility for personal and professional learning and development.
D7	Manage time, priorities, and workloads.
D8	Design system management skills, including digital design media and IT skills.

3.4 ASSESSMENT

Please refer to the AA School Academic Regulations for a complete description of assessment procedures as set out with consistency in the postgraduate programmes. Listed below are issues pertaining directly to the AADRL MArch Architecture and Urbanism programme.

Assessment Procedures

Students are assessed by course tutors and given a course mark for all compulsory modules, which they complete in the programme. Students are assessed individually based upon the quality of their final course submissions, required of all compulsory modules. The weight of each course mark is summarised in the previous table.

Assessment criteria apply to the programme's different modules. All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

- Context and analysis
- Process and synthesis
- Resolution and communication

Overall, students are assessed on the following:

- Course Participation
- Design Tutorial Assessments
- Design Presentation Assessments
- Course Submission Assessments

Course Participation

The assessment procedure in the programme's Core Studios and Core Modules (Workshops) are course submissions made at the end of each module, which are read and marked by course tutors. Assessment procedures for the Seminar modules are also based on course submissions completed at the end of the course, which is reflected in the greater weight given the final course submission in the student's overall mark for the course.

Participation in Core Studio and Core Modules (Workshops) is constantly monitored in two principal forms: during design tutorials, and interim/final project presentations. The final course submissions required at the end of each course, are assessed, and form the basis for marks given to students for each required and designated study module. If students are not participating adequately within the course, they receive a written warning by programme directors if at any time their participation is deemed lacking by course tutors. This leads to meetings with the student and course tutors to review participation and learning progress. Failure to improve participation to suitable levels results in the student being asked to repeat study modules or, in extremely rare cases, repeat Phase I studies in the programme. In exceptionally rare cases students unable to satisfactorily pass compulsory study modules and showing insufficient progress are asked to leave the programme. Appeal procedures regarding these decisions are summarised in the AA School Academic Regulations.

Design Tutorial Assessments

Tutor–led design tutorials with individual students and design teams are an essential assessment procedure in the programme. They are regularly held throughout the entire duration of all projects completed in Core Studios and Core Modules (Workshops) and are the means by which tutors assess a student's learning, knowledge, and skills as reflected in design results. Design tutorials consist of studio–based meetings between course tutors, individual students and/or design teams. Recent design results and activities are verbally presented to course tutors, in the form of printed documents, animations, videos, programming exercises, physical and digital models. These results are assessed verbally during an exchange between students and course tutor, who evaluates progress, the relationship between results and expectations, the design team's own goals, and the written design objectives contained in the module syllabus and project brief. Importantly, the role of individual members within design teams is presented, discussed, and assessed.

During these sessions, tutors make notes regarding the project's progress, diagrams suggesting alternative routes, goals, or processes to explore, and typically conclude with suggestions for future development of the project. These results are then subsequently compared to results presented in later tutorials, giving tutors an intimate understanding of each student's learning progress and outcomes. During design tutorials assessments are made in comparison to each student's internal progress and development, relative to his or her own past performance and participation. This allows an absolute measure of progress made by individual students and teams. Criteria for this assessment are described below.

Design Presentation Assessments

At select intervals during the development of a project and at the end of all Core Studios and Core Modules (Workshops), design teams additionally present a coherent summary of their design projects, affording another key assessment procedure for course tutors to assess individual students' knowledge, skill and learning. At these presentations to course staff and invited outside critics, each member of design teams participates in a verbal presentation of documents and other design results relating to a design project. In Core Studios and Core Modules (Workshops), the assessment of individual student and team performance is made by the course tutors in direct comparison to the performance of other individuals and teams working on the same project brief and within the same study module, allowing assessment to be made in relative, comparative, ways. Presentations in Core Studios are less formal and typically relate to the essential or recommended readings of a given class session; these presentations are assessed relative to the final course submissions made at the end of the course.
The criteria for design assessments are described below.

Course Submission Assessments

Course submissions form the third key assessment procedure in the programme. Course Submissions consist of written or other forms of documents submitted at the end of a course or study module. The content of these required submissions, which form the criteria for assessing the submission, vary according to the two principal kinds of study modules in the programme: studio– based Core Studio and Core Modules (Workshops) courses, which result in the submission of booklets, books or multi–media documenting the design project; and Seminars, which result in the submission of written essays or equivalent documents relating to the course topic. Submission requirements for each course type are summarised below.

3.5 CREDIT FRAMEWORK

Term	Course Title	Credits
1	Core Module I – Design Workshop I	10
1	Core Module II – Design Workshop II	10
1	Research Methods Seminar – Design as Research	10
2	Core Seminar A – Behaviour: Examining the Proto-Systemic	10
2	Core Seminar B – Constructed Histories: Techno-centric History of Design and Relation to the Mathematics, Tools and Materials of the Age	10
2	Core Studio I	30
3	Core Studio II	30
4	Core Module III – Prototyping Workshop III	10
4	Thesis	60
1 + 2	Seminar: Synthesis – Project Submission, Writing and Research Documentation	0 (Supporting programme content)
1 + 2	Software Seminars	0 (Supporting programme content)
3	Thesis Preparation Document	0 (Supporting programme content)

3.6 TEACHING AND LEARNING METHODS

There are three main kinds of study modules in the programme, which serve as the basis for attaining expected learning outcomes. These are Core Studios, Core Modules (Design Workshops), and Seminars. Core studios include Phase I Core Studios taken in terms 2 and 3, and the Thesis Design Studio taken in term 4. The module structure and content is generally the same, and focuses on the preparation of architectural design projects undertaken in small, self–organised, design teams. Core Modules/Design Workshops consist of shorter– term design projects undertaken in the first and final term of the programme. The seminars offered by the programme consist of core theoretical and case study surveys that create the foundational knowledge to support the design research studios.

3.7 COURSES

TITLE	CORE MODULE I AND II – DESIGN WORKSHOP I AND II		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Shajay Bhooshan, Apostolos Despotidis, Pierandrea Angius, Nassia Inglessis	Term	1
		Credits	10 + 10
Learning Methods	Tutorials Juries	Workload	300 hours study, inclusive of teaching contact: 90 hours teaching/210 hours self-directed study

Synopsis

Phase I project design work in the MArch DRL: Architecture and Urbanism begins with a quick sequence of two inter–related design workshops that last 5 weeks. During Term 1 these workshops provide a quick start to the year's Core Studio work and are designed to incrementally introduce a range of theoretical concepts, design approaches, and skills necessary for undertaking the larger Phase I Core Studio project, starting at the beginning of Term 2. These design workshops each focus on a specialised area of design investigations and are thematically consistent across the different individual tutor–led sections of the workshop.

Aims

Term 1 begins with two Core Modules / Design Workshops, emphasising computational and material prototyping as both an analytical methodology as well as the prime mode of design production and representation. Each 5-week Core Module focuses on a specific set of methods and intended design output, introducing Phase I students to a broad range of concepts and techniques, with which to proceed to the following Core Modules and the year-long Phase I and Phase II Thesis Studio projects. The Term 1 Core Modules / Workshops emphasise short term, constrained, project briefs and goals. Teams are not expected to complete detailed building proposals, which are the focus of Core Studio courses later in Phases I and II. During Term 1 these Workshops seek to 'tool up' new and returning students, and their emphasis is on active, intensive, design experimentation. The collective results of Term 1 Core Modules / Workshops are intended as a potential catalogue of project prototypes, design processes, concepts, and techniques available for application and investigation as a part of the Core Studio projects later in the year. For this potential to be realised the Core Modules / Workshops projects must be systematically completed and documented in ways that productively summarise the objectives, features and techniques explored in their making. While students are encouraged to explore different team arrangements in successive Core Modules / Workshops and make cross–connections to presentations and readings in MArch Architecture and Urbanism Seminars, every effort should be made to promote project continuity across the different Core Modules / Workshops or teams).

Content

Project briefs stipulate the details constraining a project undertaken as part of one course offering of the study module, including issues of use, site, programme, organisation, and relationship to surrounding urban context, contemporary design theories and proposed design tools/systems.

CORE MODULE I A / Design Workshop I A: Pierandrea Angius
The Design Workshop I A focuses on digital modelling and fabrication techniques, elaborating complex geometrical topologies through form-finding processes and extrapolating ad hoc geometrical CAM

information. Three-dimensional tessellation systems and geometrical unrolling procedures will be used to rationalise into flat shapes the overall geometry and fabricate physical prototypes using laser-cut machines and flat foldable sheets. The students are asked to work on an iterative production of multiple outcomes, cataloguing the prototyping processes, both digitally and physically, and using fitness criteria to compare and evaluate specific performative aspects vis-à-vis morphological and structural variations. Rhino, Grasshopper and few additional grasshopper plugins are used to simulate and model the digital outcomes whilst the prototyping of the analogue counterparts are realised at the Digital Prototyping Lab using laser-cut machines and materials such as sheets of cardboard, polypropylene and thin plywood.

CORE MODULE I B / Design Workshop I B: Apostolos Despotidis with Ogulcan Sulucay
This Core Module / Design Workshop will explore transformable formations in a systemic approach, experimenting on the physical properties of materials, analysing the inherent characteristics but also exploring embedded performance qualities of composite systems. The material limitations and constrains will inform the design methodology and direct the evolution of the system. The students will explore various interactive models constantly looping through analogue and digital simulations aiming to approximate the behaviour of complex dynamic configurations. Analogue models will feedback design information to digital models, which by creating a digital tween enhance the generative design process. Dynamic models will be developed focusing on evolutionary design techniques and factual design decisions based on performance criteria. Design through prototyping and development will intuitively guide the students through the workshop. A wide range or sensors and actuators will be used, introducing the students to the world of scripting and the basic operation of microcontrollers. The outcome of the workshop will be dynamic physical models with embedded behaviour able to transform, move or interact with their environment. 3D design software and the Arduino platform will be the main toolkit during the workshop.

CORE MODULE I C / Design Workshop I C: Nassia Inglessis with Hanjun Kim and Elisavet Konstantinidou
Explore and prototype bi-stable compliant mechanisms that can alter their geometric or topological configuration to act as a physical logic switch, switching between 2 or more steady states. In creating this [0,1] physical logic switch the students will investigate and prototype functionally graded materials both in composition and structure, that can result in compliant mechanisms. These compliant mechanisms must demonstrate that a small input force can be amplified and actuate a complex three-dimensional output motion via elastic deformation. In the second phase the students are to extrapolate the unit switch into a network of switches and explore computationally and physically the full envelope of possible transformations by combinatorial permutations. They will catalogue the state space of the prototypical physical system and further explore its capacity for functionally adaptive spatial morphology in interaction with its context.

CORE MODULE II A / Design Workshop II A: Shajay Bhooshan with Jose Pareja Gomez
The brief of the workshop A - Strength through geometry- is to create, using the least amount of computer code, so-called Functionally Graded Materials that can be physically realised using a 3D printer. FGMs are materials whereby their properties such as strength can be finely tuned and controlled at a granular scale. In particular, the focus was on a technique that involves:

- the creation of a dense grid of cells (*voxels*) that host connected geometrical elements (*cell geometry*), and
- controlling the density and pattern of connectivity within a particular cell of the grid and its neighbours.

The resulting grid of cells exhibits the desired property of functional gradation primarily through control of the small-scale geometry i.e. *strength through geometry*.

CORE MODULE II B / Design Workshop II B: Apostolos Despotidis with Ogulcan Sulucay
This Core Module / Design Workshop aims to investigate generative design using discrete morphological models that systematically examine the relationship of the part within a given system based on specific rules and scenarios. This rule-based generative model creates an iterative process of assembling geometries. The students will be experimenting with the development of aggregations rules aiming to control and enhance the morphogenetic process. Through extensive experimentation and iterations the students will establish assessment criteria which will define the success or failure of each module and the resulting geometry. The workshop will focus on the use of Rhino, Grasshopper and Monoceros to digitally create geometries and define rules that govern the generative model. The outcome of the workshop will be digital catalogues of three dimensional morphologies accompanied with small scale 3d prints.

CORE MODULE II C / Design Workshop II C: Hanjun Kim
The workshop C will delve into the realm of flocking algorithms, focusing on the interaction between agent populations steered by intricate local and global rule sets. The aim is to understand how these interactions can be controlled, taking into account varying environmental conditions and guiding principles. The workshop will experiment with the coordinated movements of agents, exploring themes of self-organization and emergent behaviours. Computational strategies that allow for the evolution and adaptation of these rules will be experimented during the workshop. Embracing a lens of natural selection, digital assessment methods will be employed, giving rise to a new lineage of hybrid architectural structures. These structures are anticipated to embody new sensibilities of collective configurations and time-based evolution. Unity with C# will be the primary technological platform, enhancing the workshop's computational depth. This blend of technology and algorithmic design will expedite the crafting of architectural prototypes, underscoring the possibilities of computational design with architectural ingenuity.

CORE MODULE II D / Design Workshop II D: Pierandrea Angius with Nassia Inglessis
Robotically actuated programmable flat 2D surfaces kinematically deployed by 'fold & cut' strategies. The geometric & topological transformation and actuation by electronic actuators, (rotary motors, lineartion by actuators). They will work towards optimising a performative aim for their deployable flat bots, these could include : Volumetric Deployment (Expansion/Retraction ratio), Propagation/ Mobility in variable terrain conditions, Max range of structural gymnastics of anchored points, Anchoring to Neighbours and Self-organising strategies, Adaptability of surface / Tunable stiffness: Hardening /softening shell. The deliverable of the digital and computational prototyping will include taxonomic classification of multiple iterations of Flat-bots morphologies, analysis of the phylogenetic variations within the designed taxonomy and behavioural patterns - folding-unfolding and transformational sequences. The deliverables of the physical prototyping will include: taxonomy of multiple laser-cut iterations of Flat-bots morphologies, fully functional robotically actuated deployable flat-bot/s.

Learning Outcomes

At the end of the Course students are expected to:

- have acquired a range of technical skills in modelmaking, aimed at developing a shared set of diagrammatic techniques and organisational systems, as an initial open-source body of research.
- have been introduced to the design implications of the key concepts and intellectual frameworks underlying the AADRL's studio design approach.
- have been introduced to the AADRL shared group design research methodology, allowing concurrent work to contribute to a larger design thesis, being encouraged to work simultaneously of a variety of tasks and to experiment empirically on building sequential versions of proposal results.
- have gained experience in transferring information into physical models, working in a rule-based mode of building up a parametric approach to be developed in further workshops and projects.
- have been encouraged to work through some of the conceptual imperatives of the AADRL Seminars with the strict demands of building kinetic physical models.
- project work is organised, structured and communicated effectively through a range of considered methods and visual, verbal and written skills.

Submission

- Project Booklet

Assessment Criteria

Final marks for the course will be based upon the final Project Presentation and Course Submission. All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Demonstration of the understanding of the key concepts and issues related to the Core Module/Design Workshops I & II agenda leading to the formulation of the Design Workshop Proposal.

- Demonstration of a clear formulation of the aims underlying the project developed in each Design Workshop, including the ways in which these aims relate to the Core Module/Design Workshops I & II Brief.

Process and synthesis

- Display of clearly documented design skills, thinking and reasoning, including the ability to work with team-mates in the development of the project.

Resolution and communication

- Clear demonstration of the design potentials and further application worked through in the Core Module/Design Workshops I & II assignment.
- Demonstration of design skills, including clearly organised and structured documents describing all aspects of each Core Module, as layout of graphic material and a range of well-crafted physical models.

TITLE	RESEARCH METHODS SEMINAR – DESIGN AS RESEARCH		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Nerma Cridge	Term	1
Learning Methods	Lectures Seminar	Credits	10
		Workload	100 hours study, inclusive of teaching contact: 30 hours teaching/70 hours self-directed study

Synopsis

This seminar provides an introduction and necessary historical and theoretical background to the programme's approach to architectural design as a form of research method. The module is taught by the programme coordinator. The course is delivered in the form of weekly two-hour class sessions, during which the course tutor makes presentations and directs discussions of essential course readings. Following an introductory seminar session outlining an overview of the course aims and topics, each weekly session focuses on a single issue related to the design approach, concepts, design systems and discourses related to the core studio and workshop module projects of the programme.

Aims

A key aim of the Research Method Seminar is to provide a thorough and coherent background to issues related to the programme's team-based design projects, including methods of working, design tools, concepts, knowledge, and skills. This seminar provides students with necessary theoretical reflection on the project-oriented forms of teaching and learning in the programme's Core Studio and Module courses. The seminar also allows students to work individually or in small team formations different than the team arrangements of the programme's core studio and workshop module courses.

Content

- Session 1: Introduction – Design as Research
- Session 2: Processes – Machinic Design Operations
- Session 3: Fields – Nomadic Organisational Strategies
- Session 4: Time and Topology – Form as Dynamic Effect
- Session 5: Matter and Algorithm
- Session 6: Emergence – Self-organisation and Complexity as a Design Tool
- Session 7: Networks – Connective Space
- Session 8: Ambience – Sampling and Stochastic Techniques

Learning Outcomes

At the end of the Course students are expected to:

- have acquired knowledge about the concepts and skills related to contemporary architectural design and its discourses by study of selected writings and project publications.
- have acquired knowledge about architectural design as a form of research method, including new and innovative forms of design as research, and innovative design projects.
- have become familiar with important writings by leading theorists and practitioners from related disciplines whose operational terms and working results provide a useful framework for the

programme's core studios and workshop modules, and which relate to individual student design interests and objectives.
- have gained experience, knowledge and skills related to the understanding, interpretation, and presentation of important projects, gained by undertaking detailed analyses of architectural or other projects.
- have acquired intellectual skills related to the evaluation and documentation of the concepts and ideas presented in course readings.
- have learned to situate personal design ideas and objectives, related to the student's ongoing work in the programme core studios and workshop modules, in relation to contemporary design discourses.
- research into appropriate contextual, conceptual, critical and technological precedents, methodologies, practices and tools is synthesised into the design process that demonstrates criticality and independent learning skills.

Submission

- Essay (3,000 words or equivalent)

Assessment Criteria

Final marks for the course are based upon final course submission, which is individual. All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis
- Demonstration of the understanding of the key concepts and ideas related to architectural design and research, included in course discussions and weekly course readings.
- Demonstration of a clear formulation of the aims underlying the thesis and agenda, as verbally explained in course presentations, and contained in the course submission.

Process and synthesis
- Display of clearly documented analytic skills and reasoning, in course presentations, discussions, and course submission.

Resolution and communication
- Clear structure, organisation, and layout of the work in the course submission, including precise and clear writing, use of good textual and bibliographic skills.
- Demonstration of good judgement in the selection of research materials, documentation, and development of clear project graphics, including diagrams, photos, and other materials.

TITLE	SYNTHESIS – PROJECT SUBMISSION, WRITING AND RESEARCH DOCUMENTATION		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Carlos Andres Lora, Klaus Platzgummer, Macarena Poppe	Terms	1 and 2
Learning Methods	Seminars	Credits	0 (Supporting programme content)

Synopsis

The object of this seminar is to help students produce and present written work that is well-organised and clearly argued and conforms to the standards of a graduate level design programme. It is important to recognise the role of writing and text-based research within contemporary architectural design. This seminar will help students to acquire strong skills in the communication and presentation of their overall design results and research; skills which are an expected outcome of the programme as well as important aspects of professional and academic life. Synthesis takes place in Term 1 and Term 2 of the academic year and focuses on completing a series of writing and research exercises working towards the end-of-term submission of one essay of 3,000 words for Term 1 based on Design as Research topics; and two essays of the same length for Term 2 based on Behaviour and Constructed Histories.

Aims

The aim of the course is to give students an outlet to express their architectural research ideas interpretation and analysis, through a venue other than studio. Students are required to be in the seminar each week and to present their work regularly. The weekly assignments are part of the natural progression of writing an essay and should be followed closely. Ultimately, the seminar aims to ensure that students learn how to analyse, interpret, argue for, and apply texts and readings of buildings, within their own architectural thinking, workshop/studio projects and the agenda of the AADRL.

Content

- Session 1: Introduction and presentation of Types and Elements of an academic essay
- Session 2: Discussion on exercise 1 – Analysis
- Session 3: Discussion on exercise 2 – Response
- Session 4: Discussion on exercise 3 – Critique
- Session 5: Essay Development 1 – Abstract and Introduction
- Session 6: Essay Development 2 – References and Visual Material
- Session 7: Essay Development 3 – Essay structure and Outline
- Session 8: Individual Tutorials – Essay Draft

Learning Outcomes

At the end of the Course students are expected to:

- have acquired knowledge about architectural design as a form of research and writing.
- display clearly documented analytic skills and reasoning during the course presentations and discussions.
- Demonstrate a good knowledge of all aspects of academic writing at a postgraduate level.
- have acquired strong skills in the communication and presentation of their design results and research.

Submission

- N/A

TITLE	SOFTWARE SEMINARS		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Valentina Marticorena Angela, Akshay Khumar, Selim Helse, Zhicheng Yang	Terms	1 and 2
Learning Methods	Seminars Tutorials	Credits	0 (Supporting programme content)

Synopsis

The course consists of weekly class sessions during which tutorials are offered for software applications. These optional seminars are not taken for credits and do not require course submissions; however, it is highly recommended that students attend all sessions, so as to familiarise oneself with the range of applications and tools that are used within the design studio.

Aims

The software seminars aim to develop skills associated with using the two dominant software MArch DRL: Architecture and Urbanism modelling applications used in the programme's core studio and workshop module projects. As students become familiar with the application interfaces and commands, more complex techniques are introduced, including inverse kinematic modelling and scripting.

Content

The seminar courses are offered in the form of a two–term sequences of classes:

- Rhino + RhinoScript - Python
- Grasshopper & Visual Basic .NET
- Maya + Modelling + Mel
- Houdini

Learning Outcomes

At the end of the Course students are expected to:

- have acquired the necessary skillset emphasised in the project-based design research modes in the AADRL.
- Have selected a limited range of applications to become an expert rather than only attaining a general understanding and operational proficiency in several applications.

Submission

- N/A

TITLE	CORE STUDIO I AND II		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Pierandrea Angius, Shajay Bhooshan, Apostolos Despotidis, Jose Pareja Gomez, Hanjun Kim, Nassia Inglessis, Henry David Louth, Patrik Schumacher, Ashwin Shah, Theodore Spyropoulos	Terms	2 and 3
		Credits	Core Studio I: 30 Core Studio II: 30
Learning Methods	Tutorials Juries	Workload	600 hours study, inclusive of teaching contact: 140 hours teaching/460 hours self-directed study

Synopsis

The MArch DRL: Architecture and Urbanism's Core Studio courses are the core of its teaching and learning. The programme directors lead design studio agenda, which is taught by studio course tutors. The Phase I Core Studio is organised in two term–long modules, titled Core Studio I & II. Core Studio I is taught in Term 2 and Core Studio II is taught in Term 3. The focus of the course is on the development of design knowledge and skills related to the making of comprehensive, detailed, architectural design projects. The main outcome of the course is a detailed design project, which is developed in stages during both terms of the course. Core Studio I involves initial analysis and research of project constraints, preliminary brief, area, site, client analysis, and preliminary design stages. Core Studio II involves further design development, testing, coordination of parts and different systems, the making of detailed design documents and models, and final evaluation and presentation of the project. Design results achieved at the end of Core Studio II are carried forward by design teams the following autumn in the form of Thesis design projects.

Projects completed in core studio courses emphasise a creative combination of both digital and physical modelling processes, and the use of a combination of hand–made and machined model– making skills used to create detailed architectural models of the design projects. These projects are further refined, documented, and presented in a variety of formats, which are used to visualise and communicate design results to course tutors, classmates, and invited outside critics.

Aims

Our research agenda - Social Ecologies - examines open frameworks that respond to ecological, social and economic models of influence. Operating within computational platforms of gamin platforms real-time models are simulated and developed as active interfaces to mitigate complexities of today.

Theo Spyropoulos' studio examines the ecological through the elemental. Water / Earth / Fire / Air are seen as medium and infrastructures to examine humanitarian issues that support life both human and non-human. The studio challenges the fixed and finite orthodoxies of building design for a latent and unknown world. Within the contemporary condition new conceptual terrains emerge that raise questions of agency and intelligence within a deep ecology of our environment. The studio examines the elemental phenomena as technology Can we control the clouds? Can we grow our homes? An architecture of constructed atmosphere as energy.

Patrik Schumacher's studio explores the Cyber-incubators for commercial and corporate developments. The studio contributes to the space of social communication after Covid-19 should be designed simultaneously as both real and virtual navigation and communication realms, as cyber- urban spaces, seamlessly integrating physically immediate and digitally mediated communicative interactions, constituting a new augmented mixed reality.

Shajay Bhooshan's studio examines gamification and participatory strategies within robotic fabrication while enabling mass-customisation strategies that can compete with contemporary co- living models in highly productive cities. The promise of mass-customisation integrated with new models of housing now allows for the generation of a vibrant community fabric.

Pierandrea Angius' studio explores mobile and responsive habitats as extensions of the human body, harmonising with natural rhythms and challenging fixed boundaries. Focusing on ecological and mechanical complexity, the studio rethinks infrastructure as dynamic and adaptable, enabling self-sufficiency, resource economy, and collective habitation.

Content

Each course tutor will write his or her own Project Brief, stipulating a set of specific design objectives, criteria, site, etc. which his or her group will focus on during the design studio. Students form small design teams of 3 (and sometimes 4) people each and select one of the Project Briefs and tutors to work with in the development of design projects that are the expected learning outcome of Core Studio I and II. Students are encouraged to carry forward the design results achieved in previous term's Core Modules / Workshops projects, while also working in the same design teams, but this is not a requirement. Project Briefs are handed out at the beginning of the Core Studio I and differ according to each individual tutors' approach to the studio syllabus. These project briefs become the basis for all subsequent design work undertaken by the design teams during Core Studio I and II. The details of project briefs vary from tutor to tutor, but all four share the same overall course aim, topic, schedule of work, assignment, expected results, course requirements and assessment criteria.

CORE STUDIO I & II A: Pierandrea Angius

CORE STUDIO I & II B: Patrik Schumacher with Jose Pareja Gomez and Ashwin Shah

CORE STUDIO I & II C: Theodore Spyropoulos with Hanjun Kim and Apostolos Despotidis

CORE STUDIO I & II D: Shajay Bhooshan with Henry David Louth and Jayanaveenaa Periyasamy

Learning Outcomes

At the end of the Course students are expected to:

- have acquired a range of technical skills and knowledge related to the making of detailed architectural design projects.
- have gained understanding and knowledge of an ability to work within small design teams jointly on a group design project, including abilities related to establishing design goals, objects, and project results.
- have learned how to make digital and physical architectural models that show the detailed organisation, assembly, and design of an architectural project in relation to its urban setting and surroundings.
- have learned how to record and describe patterns of use, operation and performance of an architectural design project described dynamically, in relation to time.
- have learned how to conceptually create, test, and modify design assumptions in relation to a specific, detailed design proposal.
- have gained experience in relating initial design objectives to project briefs, including key project constraints, as well as in relation to specific design processes, tools, and concepts.
- have learned skills related to the making and refining of a design project in relation to contemporary architectural design discourses and urbanism.
- have gained understanding and knowledge of how to document, present, and communicate design results, in relation to both the internal design objectives and the history of the project design, as well as key conceptual and theoretical terms relevant to the chosen project goals and objectives.

Submission

- Project Document

Assessment Criteria

Final marks for the course are based upon final course submission. Normally, all team members receive the same course mark, which is marked on the final course submission with written commentary. Individual student marks can be lowered in relation to team members in extreme cases. All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Demonstration of an understanding of key concepts and issues related to the making of responsive architectural designs, as described verbally in design tutorials and presentations, and summarised graphically in the project document prepared as the final course submission.

Process and synthesis

- Demonstration of clear, articulate, design objectives, goals, and processes; demonstrated in relation to design project analysis, potential alternatives, and interim stages of design development.
- Demonstration of an ability to evaluate and critically assess specific design outcomes in relation to initial design goals, comparative methods or techniques, or in relation to essential or recommended course readings.
- Display of clearly documented design skills, thinking and reasoning, including the ability to work with teammates in the development of the project.

Resolution and communication

- Clear demonstration of an understanding of the design potentials and potential further application of the work, shown in the summary of the final core studio project.
- Demonstration of design documentation skills, including clearly organised and structured design media including models; diagrams and other graphics; final project documents describing all aspects of the studio project, prepared in a timely, well-organised manner with a clear and concise layout of graphic materials, a range of well-crafted physical models, and clear, concise, written summary.

TITLE	CORE SEMINAR A – BEHAVIOUR: EXAMINING THE PROTO-SYSTEMIC		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Theodore Spyropoulos with Nerma Cridge	Term	2
Learning Methods	Lectures Seminar	Credits	10
		Workload	100 hours study, inclusive of teaching contact: 30 hours teaching/70 hours self-directed study

Synopsis

This elective seminar follows a behaviour-based agenda to engage with experimental forms of material and computational practice. Through an examination of cybernetic and systemic thinking in relation to seminal forms of prototyping and experimentation, the seminar will look at experiments that have manifested since the early 1950s as maverick machines, architectures, and ideologies. Team-based presentations will examine these methods and outputs as case studies for studio experimentation.

Aims

This elective seminar will articulate Proto-Design as a behaviour-based agenda that engages experimental forms of material and computational practice. Examining cybernetic and systemic thinking through seminal forms of prototyping and experimentation, the seminar will look at the thought experiments that have manifested since the early fifties as maverick machines, architectures and ideologies.

Coupled with exploratory forms of systemic practice the seminar will look at seminal analogue computational setups of architecture and engineering masters such as Frei Otto, Robert Le Ricolais, Buckminster Fuller, and Eladio Dieste. Team-based presentations will examine these methods and outputs as case studies for studio experimentation.

Content

- Session 1: Introduction
- Session 2: Architectural Machines
- Session 3: From Cybernetics to Architectural Intelligence
- Session 4: Evolutionary Architectures Session 5: Robotic Life
- Session 6: More with Less: Indestructible Ideas Session 7: World Games
- Session 8: Eladio Dieste vs Today

Learning Outcomes

At the end of the Course students are expected to:

- have acquired knowledge about the concepts and skills related to contemporary architectural design and its discourses by study of selected writings and project publications.
- have acquired knowledge about architectural design as a form of research, including new and innovative forms of design as research and innovative design projects.

- have become familiar with important writings by leading theorists and practitioners from related disciplines whose operational terms and working results provide a useful framework for the programme's design studios and workshops, and which relate to individual student design interests and objectives.
- have gained experience, knowledge and skills related to the understanding, interpretation, and presentation of important projects; gained by undertaking detailed analyses of architectural or other projects.
- have acquired intellectual skills related to the evaluation and documentation of the concepts and ideas presented in course readings.
- have learned to situate personal design ideas and objectives, related to the student's ongoing work in relation to contemporary design discourses.

Submission

- Essay (3,000 words or equivalent)

Assessment Criteria

Final marks for the course are based upon final course submission, which is individual. All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Demonstration of the understanding of the key concepts and ideas related to architectural design and research, included in course discussions and weekly course readings.
- Demonstration of a clear formulation of the aims underlying the thesis and agenda, as verbally explained in course presentations, and contained in the course submission.

Process and synthesis

- Display of clearly documented analytic skills and reasoning, in course presentations, discussions, and course submission.

Resolution and communication

- Clear structure, organisation, and layout of the work in the course submission, including precise and clear writing, use of good textual and bibliographic skills.
- Demonstration of good judgement in the selection of research materials, documentation, and

TITLE	CORE SEMINAR B – CONSTRUCTED HISTORIES: TECHNO-CENTRIC HISTORY OF DESIGN AND RELATION TO THE MATHEMATICS, TOOLS AND MATERIALS OF THE AGE		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Shajay Bhooshan	Term	2
Learning Methods	Lectures Seminar	Credits	10
		Workload	100 hours study, inclusive of teaching contact: 30 hours teaching/70 hours self-directed study

Synopsis

This seminar traces synoptic histories of the built environment as a consequence of the liberating power of geometric abstraction to then understand such histories as additive manufacture of yesteryear in bricks and stone, influenced by and reciprocally shaping mathematics of graphic statics and stereotomy.

Aims

One of the clearest acknowledged examples of the influence of mathematics during an age in relation to its architecture is arguably that of the perspective. As argued by Jared Diamond in Guns, Germs, and Steel, a materialist point of view would be an influence of the material limitations, its supply and forming logistics and economics that shape the history of mankind. This seminar aims to trace synoptic histories of the built environment as a consequence of the liberating power of geometric abstraction – abstraction in geometry and mathematics, the limits of material, its opportunities, etc. It aims then to trace such histories as that of additive manufacturing of yesteryear; like bricks and stone, influenced by, and reciprocally shaping mathematics of graphic statics and stereotomy; the design of the modern automobile and the aircraft as exponentially multiplied by the advent of the computer models of physical splines by Bezier and others; the handbook of RCC design and the reconstruction of Britain; and the playful histories of design of toys, paper-craft and ship-hulls as enabled by the mathematics of developable surfaces etc. Other peculiar perspectives could include origami and timber, steel, and the railways station design etc.

Content

- Session 1: Introduction
- Session 2 and 3: Design computation / SubDivision surfaces / Topology optimisation
- Session 4 and 5: Architecture, science, engineering / Reinforced Concrete Manufacturing / Technology and bridges / Technology, shells and spatial structures / Technology and towers
- Session 6 and 7: Materials / Curved Creases and Folding / Fabric Foamwork / Plastics

Learning Outcomes

At the end of the Course students are expected to:

- have acquired knowledge about the concepts and skills related to contemporary architectural design and its discourses by study of selected writings and project publications.
- have acquired knowledge about architectural design as a form of research, including new and innovative forms of design as research, new and innovative design projects.

- have become familiar with important writings by leading theorists and practitioners from related disciplines whose operational terms and working results provide a useful framework for the programme's design studios and workshops, and which relate to individual student design interests and objectives.
- have gained experience, knowledge and skills related to the understanding, interpretation, and presentation of important projects; gained by undertaking detailed analyses of architectural or other projects.
- have acquired intellectual skills related to the evaluation and documentation of the concepts and ideas presented in course readings.
- have learned to situate personal design ideas and objectives, related to the student's ongoing work in relation to contemporary design discourses.

Submission

- Essay (3,000 words or equivalent)

Assessment Criteria

Final marks for the course are based upon final course submission, which is individual. All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Demonstration of the understanding of the key concepts and ideas related to architectural design and research, included in course discussions and weekly course readings.
- Demonstration of a clear formulation of the aims underlying the thesis and agenda, as verbally explained in course presentations, and contained in the course submission.

Process and synthesis

- Display of clearly documented analytic skills and reasoning, in course presentations, discussions, and course submission.

Resolution and communication

- Clear structure, organisation, and layout of the work in the course submission, including precise and clear writing, use of good textual and bibliographic skills.
- Demonstration of good judgement in the selection of research materials, documentation, and development of clear project graphics, including diagrams, photos, and other materials.

TITLE	THESIS PREPARATION DOCUMENT		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Pierandrea Angius, Shajay Bhooshan, Patrik Schumacher, Theodore Spyropoulos	Term	3
Learning Methods	Tutorials	Credits	0 (Supporting programme content)

Synopsis

Phase II studies in the MArch DRL: Architecture and Urbanism begin with the submission of a detailed thesis design project proposal, submitted by each Phase II Thesis design team in the form of a wire bound project booklet. This thesis preparation document is prepared independently by the Phase II Thesis team as a proposal outlining the overall project scope and design objectives of the Phase II Thesis project, which begins immediately after submission of the thesis preparation document.

Aims

The aim of the Thesis Preparation Document is to spell out fully the basis for the Phase II Thesis project. The document serves as a bridge between Phases I and II in the programme, in the sense that it aims to summarise the key design results, processes and interests of the design team gained during their Phase I Course Modules and Studios, which are formulated as a design project brief for the Phase II Thesis.

The preparation of the Thesis Preparation Document is led by the design team, which develops the document based upon previous project presentations and discussions of the project by the design team to the course tutor, programme directors, and invited critics. Thesis Preparation Document is an opportunity for the design team to critically evaluate and assess their Phase I design results, and to fully specify the overall design objectives of their Thesis project.

As the Thesis is the core of Phase II work in the programme, the Thesis Preparation Document is a key means of preparing for this work, and a first initial attempt to state the various kinds of design skill and knowledge that will be brought to bear on the development of the Thesis. The main outcome of the Thesis Preparation Document is a detailed project booklet outlining key project constraints, interests, goals, schedule, proposed design tasks and expected Phase II Thesis design results.

Thesis begins with completion of a Thesis Preparation Document submitted to the course tutors for review and approval at the end of week one of Term 4 and then leads to further analysis and research of project constraints, preliminary brief, area, site and client analysis, and preliminary design stages.

Content

The cover of the Thesis Preparation Document must list the project name, tutor name, design team name, and the individual names of the design team members. The document must be organised according to the following table of contents:

- Project title, location, and other information.
- Statement of overall project objectives, design strategies, design techniques, and project goals.
- A brief summary and critical evaluation of Phase I Core Studio results; a short summary of what the design team thinks are the strongest, and weakest, parts of the work and a short summary of the main changes in site, brief, or design agenda anticipated for the Phase II Thesis.
- Site Description, including photographs, maps, and other images.
- Site Analysis, including diagrammatic studies of issues relevant to the project.
- A definitive project brief, including categories of use, events, and activities that the project will address. Overall general project areas and approximate size.

- Description of project potentials and relevance to contemporary problems of spatial formation and urbanism.
- Comparative presentation of relevant projects; historical or personal. Include projects that demonstrate applicable design techniques (including work from Phase I) or programmatic relevance to the project.
- An outline of representational techniques and media to be utilised, including a list of anticipated drawings (including scales), diagrams, models, and other media.
- A description of the anticipated role and work tasks of individual team members, indicating special areas of focus and interest.
- A work schedule for the period between the first week of the term and the final Phase II Thesis presentations.

Submission

There is not strict size requirement for the submission. Normally, each of the above 11 items are summarised on 2–4 pages each, and the final document size normally does not exceed 22–24 pages. Emphasis should be placed on a concise, clear summary of each of the required Syllabi & Project Briefs topics in order to provide a clear set of project guidelines for the project. A combination of project graphics from the phase I design studio projects and new diagrams summarising overall project ideas, scheduling, etc. should be included.

Learning Outcomes

At the end of the Course students are expected to:

- have acquired a range of design skills and knowledge relating to the framing of and planning for the making of a detailed design project.
- have gained understanding and knowledge of how to work within small design teams on the planning of a joint design project, including an increasing degree of overall design understanding, independence, and maturity.
- have learned how to relate design objectives and concepts to their own specific design results, in the form of their previous Phase I Core Studio projects.
- have learned how to anticipate and plan design strategies and overall design goals.
- have learned how to relate and interpret various kinds of design skill and knowledge, gained through a combination of previous core studios, workshops and seminars, within a single overall thesis design proposal.
- have gained experience, knowledge and skills related to project planning and scheduling, including time–management.

TITLE	CORE MODULE III – PROTOTYPING WORKSHOP		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Pierandrea Angius, Shajay Bhooshan, Apostolos Despotidis, Nassia Inglessis, Patrik Schumacher, Theodore Spyropoulos	Term	4
		Credits	10
Learning Methods	Tutorials Juries	Workload	150 hours study, inclusive of teaching contact: 50 hours teaching/100 hours self-directed study

Synopsis

Core Module III / Prototyping Workshop is a three-week intensive workshop.

Aims

The aims of the Design Workshop three is to develop a prototypical aspect in an applied and focused manner. The prototype would consider active integration of design, production and scenarios that would showcase technical innovation and applied research through detail design development. Each prototype would extract a proof of concept aspect of the overall thesis that would apply its engineering, material behaviour, controlled systems and deployment. Active integration of information based systems and how they operate in simulations scenarios would be integrated creating active real-time and behavioural social environments.

Learning Outcomes

At the end of the Course students are expected to:

- have acquired a range of technical skills in prototyping, aimed at developing a shared set of diagrammatic techniques and organisational systems, as an initial open-source body of research.
- have gained experience in transferring information into physical models, working in a rule- based mode of building up a parametric approach.

Submission

- Project Booklet

Assessment Criteria

Final marks for the course will be based upon the final Project Presentation and Course Submission. All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Demonstration of the understanding of the key concepts and issues related to the Core Module III/Prototyping Workshop agenda.
- Demonstration of a clear formulation of the aims underlying the project developed in the Prototyping Workshop, including the ways in which these aims relate to the Core Module III/Prototyping Workshop Brief.

Process and synthesis

- Display of clearly documented design skills, thinking and reasoning, including the ability to work with team-mates in the development of the project.

Resolution and communication

- Clear demonstration of the design potentials and further application worked through in the Core Module III/Prototyping Workshop assignment.
- Demonstration of design skills, including clearly organised and structured documents describing all aspects of the Core Module, as layout of graphic material and a range of well-crafted physical models.

TITLE	THESIS		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Pierandrea Angius, Shajay Bhooshan, Patrik Schumacher, Theodore Spyropoulos	Term	4
		Credits	60
Learning Methods	Tutorials	Workload	600 hours study, inclusive of teaching contact: 180 hours teaching/420 hours self-directed study

Synopsis

The programme's Thesis extends the teaching and learning of architectural design and research undertaken during Phase I, in the form of a comprehensive, detailed, final design project. The programme directors lead thesis design studio courses, which are taught by studio course tutors. The Thesis design studio is the core of Phase 2 in the programme and is taught in Term 4 of the AA calendar, namely between the 13th through 16th months of the DRL programme calendar. The focus of the course is on the development of design knowledge and skills related to the completion of a thesis design project. The main outcome of the course is an integrated, complete, design project, which is developed in stages during the course.

Aims

The Thesis follows the general stages of development undertaken in the Core Studio courses of Phase I, with the principal difference between Phase I Core Studio projects and Phase Thesis being the level of detail, overall design integration, and degree of project resolution required in the thesis design project. The Thesis completed in the course is expected to be a more thorough, resolved, and mature design project that can build upon the skills and knowledge developed in the Core Studio courses during Phase I.

Thesis begins with completion of a Thesis Preparation Document submitted to course tutors for review and approval at the end of week one in the Term 4 and then leads to further analysis and research of project constraints, preliminary brief, area, site and client analysis; and preliminary design stages. Core Studio II involves further design development, testing, coordination of parts and different systems, the making of detailed design documents and models, and final evaluation and presentation of the project. Design results achieved at the end of Core Studio II are carried forward by design teams the following September/October in the form of Thesis.

Projects completed in core studio courses emphasise a creative combination of a variety of design concepts and processes, and the use of a combination of hand-made and machined model-making skills used to create detailed architectural models of the design projects. These projects are further refined, documented, and presented in a variety of formats, which are used to visualise and communicate design results to course tutors, classmates, and invited outside critics. An important overall aim of the Thesis is the integration of innovative design ideas, processes, and skills in the form of a single, highly resolved, design project. The level of completion expected of the final project makes possible the presentation and discussion of the work with a distinguished panel of internationally renowned architects and critics in a public forum attended by the entire school community.

Content

Each design team writes their own final project brief for the project, stipulating a set of key design objectives, criteria, site, etc. which the project will focus on during its development in the course. This project brief is submitted in the form of a Thesis Preparation Document, submitted to course tutors at the end of week one in the autumn term. The project brief must address the results of core studio projects completed at the end of Phase I, and relate to the project briefs distributed during Phase I.

Students carry forward work on these projects in small design teams of 3-4 people each, usually the same design teams that worked on Phase I core studio projects. Students are encouraged to carry forward the design results achieved in previous term's core studio projects, while also working in the same design teams, but this is not a requirement. Project Briefs written by the design team spell out not only all key design objectives and aims of the final projects, while also outlining preliminary design tasks, key design concepts, work schedules, and individual team member goals. These project briefs become the basis for all subsequent design work undertaken by the design teams during the Thesis. The details of individual project briefs vary from team to team, but all share the same overall course aim, topic, schedule of work, assignment, expected results, course requirements and assessment criteria outlined in this module syllabus.

THESIS A: Pierandrea Angius

THESIS B: Patrik Schumacher with Jose Pareja Gomez and Ashwin Shah

THESIS C: Theodore Spyropoulos with Hanjun Kim and Apostolos Despotidis

THESIS D: Shajay Bhooshan with Henry David Louth and Jayanaveenaa Periyasamy

Learning Outcomes

At the end of the Course students are expected to:

- have acquired a range of design skills and knowledge related to the making of comprehensive design projects.
- have gained understanding and knowledge of an ability to work within small design teams jointly on a group design project, including abilities related to establishing design goals, objects, and project results.
- have learned how to relate design objectives and concepts to specific design decisions, problem-solving, and design processes.
- have learned how to test and evaluate design strategies and decisions in design processes and results.
- have learned how to relate a design project, including its objectives and specific design features, to contemporary design discourses and practises.
- have gained experience in relating definitive design results and outcomes to initial project constraints and parameters.
- have learned skills related to the making and refining of a design project in relation to its urban setting and context.
- have gained understanding and knowledge of how to document, present, and communicate design results; in relation to both the internal design objectives and the history of the project design, as well as key conceptual and theoretical terms relevant to the chosen project goals and objectives.

Submission

- Project Document

Assessment Criteria

Final marks for the course are based upon final course submission. Normally, all team members receive the same course mark, which is marked on the final course submission with written commentary. Individual student marks can be lowered in relation to team members in extreme cases. All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Demonstration of an understanding of key concepts and issues related to a project design as described by the student verbally in design tutorials and presentations and summarised graphically in the project document prepared as the final course submission.
- Demonstration of clear, articulate, design objectives, goals, and processes demonstrated in relation to design project analysis, potential alternatives, and interim stages of design development.

Process and synthesis

- Demonstration of an ability to evaluate and critically assess specific design outcomes in relation to initial design goals, comparative methods or techniques, or in relation to essential or recommended course readings.
- Display of clearly documented design skills, thinking and reasoning, including the ability to work with team-mates in the development of the project.

Resolution and communication

- Clear demonstration of an understanding of the design potentials and potential further application of the work, shown in the summary of the final Thesis project.
- Demonstration of design documentation skills, including clearly organised and structured design media including models; diagrams and other graphics; final project documents describing all aspects of the Thesis project, prepared in a timely, well-organised manner with a clear and concise layout of graphic materials, a range of well-crafted physical models, and clear, concise, written summary.

SECTION 4:

PG MArch IN DESIGN AND MAKE

4.1 PROGRAMME INTRODUCTION

Design + Make (MArch/MSc) is based at the AA's satellite campus at Hooke Park, a rich context which serves as an immersive laboratory for architectural research. Students study within a working forest, inhabiting a unique environment in which landscape, studio and workshop are interwoven. Since its establishment in 2010 the programme has become a leading example of experimentation through education, celebrated for its creative innovation in timber fabrication, its integration of thinking across natural resource extraction and architecture, and its pedagogical model of design through physical production.

In the face of urgent, global environmental concerns, Design and Make offers a methodology for architectural production that is deeply rooted in a consideration for material resources, earth systems and their limits. Pursuing a direct physical engagement with the making of architecture.

The Hooke Park Campus is surrounded by a 330-acre working woodland, owned and managed by the AA, set within a rich regional landscape context that encompasses the Jurassic Coast. Students investigate the innovative use of locally sourced materials – with a particular expertise in timber - to build live projects and drive new forms of research. It is a problem-solving approach that integrates forestry, ecology, craft and material knowledge with progressive design, computational and fabrication technologies.

Design through making is the focus here in our woodland studio. The research we conduct demonstrates a vision for architectural education in which making (and remaking) is central to the act of design itself. The workshop facilities on site provide a unique testing ground where we devote time to speculative research through the fabrication of highly crafted, experimental prototypes.

We materialise built work through curiosity, craft and creativity. Speculative design attitudes drive the development of built projects. Our twin catalysts for the imagination are our direct physical engagement with the site and the alchemy of the act of making – we thrive on the unexpected revelations each of these bring.

We use a hands-on approach, and students are expected to spend the majority of their time in the workshop, developing an in-depth material understanding. Technology – such as 3D scanning, advanced modelling and CNC production – is deployed to augment traditional craft and material knowledge with the aim of striking an agile balance between the computational and the physical. This is a delicate blend which creates fertile conditions for innovative projects to thrive.

This forest laboratory is a space of intense investigation, a wild-wood of creativity and a home for architectural adventurers.

The Design and Make Programme is a bifurcated programme comprising MSc (12 months) and MArch (16 Months). MSc and MArch Students work closely together. MSc students have a more explicit technical focus, specifically on innovative applications for timber in architecture which becomes the focus for their dissertation. The MArch students use making as a vehicle for broader architectural design research, and each student reflects critically on aspects of the work in their thesis.

4.2 AIMS

MArch Design and Make develops students' understanding of, and skill in, contemporary making-led architectural design. Students are expected to develop research and design with the act of making at the centre of their process. Students work at full scale on group fabrication project sand then develop their design research through detailed prototypes, test fragments and speculative models,, making the most of the opportunities presented by the Hooke Park setting. In this way, Design + Make offers a holistic embodied

approach to architecture in which the designer interacts directly with the site itself and forms architecture solutions in response to its specific ecologies and conditions.

In the first term students are introduced to Hooke Park's unique context and equipped with the necessary abilities to engage confidently with the diverse set of physical and digital fabrication tools and methodologies on offer.

The Design Through Making Studios run through term 1 & 2, supported by taught skills sessions in Fabrication Methods and Digital Skills. The work is structured around group build projects, within tightly defined design parameters, where students begin hands-on and develop the fabrication skills and tools to support their design/make projects whilst having the opportunity to work as a team.

Students are also introduced to strategies for the documenting and presentation of process-based research. This informs the development of the Fabrication Log; a working record of individual design process which becomes a companion to made work throughout the year, and includes working notes and sketches, photography, and film.

Two Seminar courses in Term 1 – Making as Design and Timber Technologies – and one in Term 2 – Force, Form, Material complement the Studio by situating the Design + Make programme and the students' research within a broader cultural and technical context. Together they provide the theoretical foundation of the programme and introduce the various fields of knowledge relevant to the design of experimental timber prototypes. MArch students undertake the Making as Design essay in Term 1, which functions as an early exploration of Thesis content and intellectual position.

In this way the first two terms introduce the theoretical and technical context, key design methodologies and fabrication practices central to the programme. Students learn the fundamentals of timber technology, a core fabrication skill set and undertake an intensive exploration of design through making.

Terms 3 & 4 build on this with the development of a focused design research project and related Thesis, resulting in well-documented built prototypes and models, with term 4 seeing the development of the individual portfolio submission and written Thesis.

These components are supplemented by extra-curricular provision, including workshops, talks, visits and practical introductions as wells as by Public Programme lectures streamed live to Hooke from London.

4.3 LEARNING OUTCOMES

INTENDED LEARNING OUTCOMES: PG MArch in Design and Make; FHEQ LEVEL 7	
Learning Outcomes 'LO'	Aligned to the Framework for Higher Education Qualifications (FHEQ) and QAA Subject Benchmark (Architecture), on successful completion of the MArch in Design and Make students will be able to:
A	**Knowledge and Understanding**
A1	Demonstrate knowledge of the application of innovative fabrication technologies and methodologies in the production of architectural constructs.
A2	Demonstrate critical awareness of advanced digital design techniques, the realms of their application, and their relative merits when integrating design and production.
A3	Demonstrate knowledge of timber properties and production with respect to its use as a construction material.
A4	Understand innovative application of timber in architecture, including through advanced design and fabrication techniques.
A5	Demonstrate systematic knowledge of the historical and theoretical bases of design-make approaches and the relationship between ideas and technique in architecture.
A6	Understand the current thinking within contemporary critical discourse surrounding landscape in relation to natural resource extraction and the sustainable application of biogenic materials in architecture.
A7	Demonstrate knowledge of the application of structural design tools and methodologies in the production of architectural constructs.
A8	Demonstrate knowledge of testing and data recording methodologies to determine structural properties of materials or assemblies.
B	**Subject Specific Skills and Attributes**
B1	Conceive, produce, represent and articulate a comprehensive design research proposition.
B2	Research contemporary and traditional construction technologies and be able to identify and characterise relevant architectural typologies and built precedents.
B3	Synthesise technologies to develop and communicate advanced approaches to design and construction.
B4	Produce detailed design information for fabrication and construction.
B5	Demonstrate practical skill competency in the processes of fabrication and the ability to make informed pragmatic judgments concerning methods of construction.
B6	Conduct research that positions the physical production of architectural components as the focal point of its evidence.
C	**Transferable Skills and Attributes**
C1	Carry out critical and technical analyses of design and construction proposals.
C2	Communicate effectively with a wide range of individuals visually, orally and in writing, including within interdisciplinary professional teams.
C3	Formulate clear and appropriate hypotheses and arguments and apply these within a research agenda.
C4	Continue expanding knowledge using the skills acquired.

4.4 ASSESSMENT

Assessment Mechanisms

Students are assessed on the submitted documents and an assessment of the final built construct or prototype. Submissions are made on the stated submission date consisting of:

- A PDF submission (max size 10MB) uploaded to the AA submissions Portal
- A Physical document for the final Portfolio and Thesis submission, submitted to the Design + Make Programme Heads in the Hooke Park office.

Late submissions are penalised in line with AA School policy, work submitted up to seven days after the deadline will be marked and 10 marks (on a scale of 100) will be deducted for that element, for each calendar day of lateness incurred. Any piece of work submitted 7 or more days after the deadline will not be assessed and assigned a mark of 0, unless the student submits personal circumstances and these are accepted. Mitigating circumstances for late submissions are considered as detailed in the AA Academic Regulations.

All submissions are assessed and marked by two or more members of the programme's regular academic staff and confirmed by the Internal Assessment Committee. Student work is then reviewed by the MArch external examiners, whose role is to ensure fair and objective marking and the maintenance of high academic standards across the School's MArch programmes. The MArch Examination Board has the responsibility for confirming the final marking of all submitted work.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. The assessment of submitted work is based on the following overall assessment, in addition to specific ones given for each module. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis
The work demonstrates a systematic understanding and critical awareness of relevant contextual factors such as site conditions, social, political, historical, economic, environmental and ethical issues. Analysis is undertaken in relation to the needs of the intended user groups and the complexities of the location. Appropriate conceptual, critical and/or technological precedents, methodologies, practices and/or tools inform the parameters of the brief, satisfying specific contextual and analytical requirements.

Process and synthesis
Research into appropriate contextual, conceptual, critical and/or technological precedents, methodologies, practices and/or tools is synthesised into the design process, allowing for creative decision-making, inventive design strategies, experimentation and originality, explored from both user and designer perspectives. Feedback is integrated into a self-directed design process that demonstrates criticality and independent learning skills, and the ability to work in a group where necessary, required for continuing professional and academic development.

Resolution and communication
Design proposals are resolved to a satisfactory standard based on the functional and aesthetic criteria and/or project themes set by the brief, with appropriate methodologies deployed in the production of appropriately ambitious propositional design work. Project work is organised, structured and communicated effectively through a range of considered representational methods and visual, verbal and written skills.

4.5 CREDIT FRAMEWORK

Term	Course Title	Credits
1	Core Module 1 – Design through Making: Induction Studio	30
1	Core Module 2 – Making As Design Seminar	10
1	Timber Technologies Seminar	0 (Supporting programme content)
1 + 2	Fabrication Methods	0 (Supporting programme content)
1 + 2	Design Information Digital Skills	0 (Supporting programme content)
2	Core Module 3 – Design through Making: Research Studio	40
2	Force, Material, Form Seminar	0 (Supporting programme content)
3 + 4	**Core Studio/Thesis – Design Make Studio**	**100 (as below)**
3 + 4	Portfolio & Built Prototype	80
3 + 4	Written Thesis	20

4.6 TEACHING AND LEARNING METHODS

Seminar Courses
The Seminar Courses consist of bi-weekly taught sessions supported by external lectures. Active participation by students in all seminars and lectures is a requirement of the programme. Students are given a reading list at the beginning of each course and are required to read set preparatory or follow-up material, and to make group or individual presentations at seminars.

For the Making as Design Seminar essay the seminar tutor will give tutorials to aid students in choosing their essay topics and focusing and developing their writing. An abstract of the proposed essay will be required from each student before the end of the seminar series, to ensure that an essay argument has been identified. The content, learning outcomes and assessment requirements of the seminar course is defined below. Assessment of the Making as Design Seminar course is of a written, illustrated essay submitted at the end of Term 1.

Studios
The Studios run throughout the length of the course and consist of the Design through Making - Induction and Research Studios, and The Core Studio. Whilst each Studio has different mechanisms and objectives, the general teaching strategies are common. Each Studio is set out by a brief and support is provided by the course directors, studio tutors, consultants and other invited lecturers, critics and jurors. These regular staff and invited lecturers give formal design/make tuition through lectures, workshops, tutorial contact and group sessions. Typically, this formal teaching occurs during weekly sessions at Hooke Park.

Student studio work takes place in the Design + Make studio and workshop spaces at Hooke Park, with physical workshop making, full-scale prototyping and site-based construction to be carried out as per the Project brief. Each project introduces a range of concepts and techniques, and students document their own work and make regular presentations. Design reviews and juries, at which students present work-in-progress for critique, are held at defined points through each Project. Generally, each project will end with a Final Jury presentation. The specific submission requirements are given in the Course Syllabi.

Group Working Methodologies
Collaborative design and group build activities form a central aspect of the programme. Students are required to respond to specific briefs as a collective design team (or teams). Prototypes and experimental architectural constructs are fabricated by student teams with guidance from tutors and technical staff.

However, whilst design and fabrication is approached collaboratively, all submissions are individual, and should demonstrate each individual student's role within the team and their specific area of research focus within the group project. All work in the submissions is clearly credited and attributed to individuals or groups as appropriate.

Research: MArch Thesis
The individual MArch Thesis is supported by individual tutorials biweekly in Term 3 and 4 to assist students in the development and production of the Thesis. Thesis is closely aligned with studio project work and provides a theoretical and research framework that supports the design development.

MArch students produce their 4000-word Thesis during Term 4. The thesis is a platform for proposing an argument, testing, resolving and critically reflecting upon strategies deployed in the made work but also for developing, testing and refining aspects of each student's practice beyond Hooke Park.

Non-Assessed Activities
In additional to the required seminars and studios, various talks, lectures and visits are organised periodically to complement the programme.

4.7 COURSES

TITLE	CORE MODULE I – DESIGN THROUGH MAKING: INDUCTION STUDIO		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Emmanuel Vercruysse, Kate Davies, Will Gowland, Sam Turner-Baldwin	Term	1
		Credits	30
Learning Methods	Weekly taught sessions	Workload	300 hours study, inclusive of teaching contact: 105 hours teaching/195 hours self-directed study

Synopsis

The *Design Through Making - Induction Studio* introduces students to the physical and material context at Hooke Park and enables them to develop design-make approaches driven by considerations of site and material. This is developed through a collective build project within which students are encouraged to establish a critical position with respect to strategies of design through making within the specific Hooke Park context.

Aims

The Design Through Making - Induction Studio, is structured around a collective, small scale, built project within which students develop their skills in fabrication and design for production and learn to work as a team. These explorations are geared towards informing a more challenging collective built project in term 2 and the development of technical research through speculative prototypes and working models in Term 3. The Studio is supported by taught skills sessions in both the *Fabrication Methods* and *Design Information Digital Skills* courses.

Content

Working in groups, students conduct technical explorations in response to a brief and supported by tutorials. This work is also informed by the skill sets they are developing through the Fabrication Methods and Digital Skills Sessions; as they become experienced with the workshops, tools and working methods. Alongside made work, the role of representation in the design process is also explored.

Learning Outcomes

- A1: Demonstrate knowledge of the application of innovative fabrication technologies and methodologies in the production of architectural constructs.
- A3: Demonstrate knowledge of timber properties and production with respect to its use as a construction material.
- A4: Understand innovative application of timber in architecture through digital design and fabrication techniques.
- A7: Demonstrate knowledge of the application of structural design tools and methodologies in the production of architectural constructs.
- B3: Synthesize these technologies to develop and communicate advanced approaches to design and construction.
- B4: Produce detailed design information for fabrication and construction.

- B5: Demonstrate practical skill competency in the processes of fabrication and the ability to make informed pragmatic judgments concerning methods of construction.
- B6: Conduct research that incorporates physical prototyping as the focal point of its evidence.
- C2: Communicate effectively with a wide range of individuals visually, orally and in writing.

Submission

- Individual Design Portfolio

Assessment Methods

An individually produced Design / Make Portfolio documents the processes and outcomes of the student's work within the group project. As well as detailed documentation of making processes, both exploratory and technical drawings form an important part of the submission, and should be used critically to analyse the work. The portfolio should include a short-written reflection on design / make approaches.

Students are to take a considered, inventive and critical approach to representing and documenting their project. The altered, reciprocal, role of representation when working in a design-make mode should be captured by collating and documenting the process as it goes along and using representative modes to both drive the work and reflect on it.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- The work demonstrates a systematic understanding and critical awareness of relevant contextual factors at Hooke Park
- The work addresses the site conditions - topographic, environmental and material
- The work demonstrates analysis of the given brief in response to the context above.
- A clear technical strategy is developed within the project
- A range of critical precedents, methodologies, practices and/or tools at the forefront of the discipline are investigated.

Approach and synthesis

- An integrated technical, environmental and aesthetic method is demonstrated
- The work demonstrates the application of research into precedents, contemporary technologies, materials and processes.
- Environmental, material and technical knowledge acquired and/or findings are synthesised into a self-directed and critical decision-making process, demonstrating originality in tackling problems
- The work shows an informed approach towards regenerative design
- The work demonstrates both independent learning and the ability to work in a group and the skills required for continuing professional and academic development.

Resolution and communication

- The work demonstrates the ability to analyse and refine technical concepts, communicating sound judgements and a critical understanding of the implications of technical design decisions.
- Through resolution, the project addresses the aesthetic, programmatic and functional requirements of the brief.
- The work is structured and organised effectively and communicated through advanced visual, verbal and written communication techniques.

TITLE	FABRICATION METHODS		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Emmanuel Vercruysse, Sam Turner Baldwin	Term	1 + 2
Learning Methods	Weekly practical workshop sessions	Credits	0 (Supporting programme content)

Synopsis

Fabrication Methods introduces students to the tools and fabrication techniques that they will be required to use throughout the programme. Skills are developed in Terms 1 and 2 through short introductory making exercises and taught sessions that directly support the collective build projects within the Design Through Making Studios.

Aims

The course aims to establish the working methods of the Design and Make course. Through a series of taught workshops, a familiarisation with analogue and digital tools is established and an essential skill-set developed. The focus lies upon providing students with an introduction to these technologies and instilling an understanding of their application and a confidence in their usage.

Content

Through a sequence of prescribed exercises students test fabrication and design methodologies, including:

- Familiarisation with key workshop tools and their use
- Working with timber - fundamental fabrication skills
- CNC; Machine and Software Familiarisation
- Traditional and contemporary approaches to fabrication using organic geometry
- Technical workshop and production drawings
- Site layout, component fabrication, and assembly strategies

Alongside these skill-based exercises, students are also introduced to strategies for the documenting and presentation of process-based research. This will inform the development of the Fabrication Log; a working record of individual design process which becomes a companion to made work throughout the year, an accumulative personal record that includes material research, shop notes, on-site observations and records of trials and failures. Although it is not a graded submission, the Fabrication Log provides an essential source of content for the Term 1 Portfolio.

Learning Outcomes

- A2: Demonstrate an understanding of design and fabrication tools and techniques, the realms of their application, and their relative merits when integrating design and production.
- B1: Apply these tools and techniques to produce a physical construct.
- B5: Demonstrate practical skill competency in the processes of fabrication and the ability to make informed pragmatic judgments concerning methods of construction.
- C2: Communicate effectively with a wide range of individuals visually, orally and in writing.

Submission

- N/A

TITLE	CORE MODULE 2 – MAKING AS DESIGN SEMINAR		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Nat Chard	Term	1
Learning Methods	Bi-Weekly seminar sessions	Credits	10
		Workload	100 hours study, inclusive of teaching contact: 25 hours teaching/75 hours self-directed study

Synopsis

The course explores the reciprocity between ideas and technique and their relationship in the process of building ideas. The seminars will discuss how a range of architects and engineers developed their practice following a background working with craft based or creative production such as cabinet making, carpentry, stone masonry, glass blowing, as blacksmiths, painters and writers. This will be related to the way they activate the creative and theoretical potential of materials and techniques (often beyond the materials and processes of which they have prior knowledge), illustrated with examples of how they and other architects, engineers and artists have appropriated or developed those techniques to embody their ideas in their work.

Aims

The course provides the theoretical foundation for the programme to help students assemble the relationships between the histories, theories, context and means of realising architecture with an emphasis on the part making plays in the theoretical discourse of architecture. The seminars will frame the ways in which an intellectual and practical understanding of making can have an influence on design beyond situations where the author is also the maker.

Content

The course sets out how knowledge is embodied in things as well as through texts – that the knowledge of how to make ideas is acquired through a mixture of:

- Understanding precedent - through studying examples through documentation such as drawings and other representations as well as examining the original item.
- Through scholarship - reading what others have to say that they share as explicit knowledge
- Through research – through personal experience of working with materials, constructing both explicit and tacit knowledge

The seminars will illustrate examples of such processes of learning and knowledge creation while each student will analyse examples of their choosing to help understand the relationship between the theoretical and practical aspects of the work they elect to study.

Learning Outcomes

- A5: Demonstrate systematic knowledge of the historical and theoretical bases of design-make approaches and the relationship between ideas and technique in architecture.
- C2: Communicate effectively with a wide range of individuals visually, orally and in writing.
- C3: Formulate clear and appropriate hypotheses and arguments.
- C4: Continue expanding knowledge using the skills acquired.

Submission

- Essay (2,000 words)

Assessment Methods

The seminar is assessed through a 2,000-word essay which is required to develop an original argument in response to the content of the seminar course.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Research and knowledge acquirement
Research into the chosen area of study is independently undertaken, demonstrating a comprehensive understanding and critical awareness of the relevant social, political, historical, theoretical, economic, environmental and/or ethical contexts, concepts, ideas and/or precedents at the forefront of the discipline, being addressed through systematic enquiry. There is evidence of research and reading of appropriate sources, and recognition of wider context and issues raised by the argument.

Approach and development
The work submitted demonstrates an inventive and original approach to the consolidation and development of research, with a consistent process of synthesising acquired knowledge is evidenced in the work. The structures, methods and/or tools utilised in the production of the work demonstrate initiative, self-directed learning, the ability to work in a group where necessary, and the skills to make complex decisions. There is a clear and definite formulation of question and structure of argument relevant to the seminar topic. Innovation and creativity is evident in the work.

Argument and communication
The work demonstrates the ability to devise and sustain complex arguments, contextualised effectively in a wider field of relevant ideas with a critical position determined. Conclusions and/or reflections are well executed, with good judgement shown in the absence of complete data. Written and visual communication skills are evidenced to a high standard throughout, and the work demonstrates the abilities developed to undertake further research. There is clarity of formal presentation including illustrative material, and appropriate acknowledgment and referencing of sources of information.

TITLE	TIMBER TECHNOLOGIES SEMINAR		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	James Solly and visiting speakers	Term	1
Learning Methods	Bi-Weekly seminar sessions with guest lectures	Credits	0 (Supporting programme content)

Synopsis

Recognising timber's essential role in low-carbon architecture, the course provides an introduction to timber structures and their production, reviewing the chain of processes from forest planting to contemporary fabrication.

Aims

The course provides the technical foundation for the programme to equip students with an understanding of the core principles, and technical background of timber construction.

Content

The course introduces students to the full cycle of timber production, processing and construction, covering the topics below:

- Introduction to Forestry and Silviculture
- The forest at Hooke Park, it's history, species and ongoing management
- Wood Anatomy – Biological and Mechanical properties
- Production – Tree to Construction Material
- Architectural Design with Timber
- Fabrication of Timber Structures – Traditional, Typical and Novel
- Contemporary Timber Research

Learning Outcomes

- A3: Demonstrate knowledge of timber growth, production and properties and production with respect to its use as a construction material.
- A4: Understand the relevant application of timber in contemporary architecture, including through digital design and fabrication techniques.
- B2: Research contemporary and traditional construction technologies and be able to identify and characterise relevant architectural typologies and built precedents.

Submission

- N/A

TITLE	DESIGN INFORMATION DIGITAL SKILLS		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Will Gowland	Terms	1 and 2
Learning Methods	Weekly taught sessions	Credits	0 (Supporting programme content)

Synopsis

The course is taught via weekly class sessions through terms 1 and 2, covering a range of relevant software skills and applying them within students *Design Through Making* Studios. These sessions are not credited and do not require course submissions; however it is highly recommended that students attend all sessions, as the skills and tools are fundamental and will be applied throughout the course.

Aims

The course aims to introduce students to the software, skills and processes which are core to the Design + Make methodology. Through aligning the Digital Skills course with the *Design Through Making* Studio, the aim is to learn methods of best practice, for the development of exemplar documentation, design information and presentation material using the live build project as a vehicle for production. More complex techniques will be introduced within the second term, to equip students with the knowledge and skills to be put into practice within the *Design Through Making - Research Studio*.

Content

The seminar course will consist of weekly classes, covering:

- Site Analysis and Documentation
- Photogrammetry & Lidar
- Digital Modelling and Drawing Production
- Rhino & Revit
- Visual Imagery and Graphic Representation for Portfolio and Report Production
- Indesign, Photoshop & Illustrator
- Film & Animation
- Premiere Pro & After Effects

Learning Outcomes

- A2: Demonstrate critical awareness of advanced digital design techniques, the realms of their application, and their relative merits when integrating design and production.
- B3: Synthesise technologies to develop and communicate advanced approaches to design and construction.
- B4: Produce detailed design information for fabrication and construction.
- C2: Communicate effectively with a wide range of individuals visually, orally and in writing, including within interdisciplinary professional teams.

Submission

- N/A

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TITLE	CORE MODULE 3 – DESIGN THROUGH MAKING: RESEARCH STUDIO		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Emmanuel Vercruysse, Kate Davies, Will Gowland, Sam Turner-Baldwin	Term	2
		Credits	40
Learning Methods	Weekly practical workshop sessions	Workload	200 hours study, inclusive of teaching contact: 105 hours teaching/295 hours self-directed study

Synopsis

The Design Through Making - Research Studio follows on from the Design Through Making - Induction Studio, with students further developing design-make approaches in response to a given brief and driven by considerations of site and material. Iterative cycles of drawing, model-making and prototyping are employed, and students establish a critical position with respect to strategies of design through making within the specific Hooke Park context.

Aims

Through the Design Through Making - Research Studio, students work collectively on a built project and begin to develop the design and technical research interests that inform a focused design research project in Term 3 & 4.

Content

During the Studio, students conduct collective design and technical explorations, in response to a given brief, supported by tutorials. This work is also informed by the skill-sets developed through *Fabrication Methods* and *Digital Skills*; as students become experienced with the workshops, tools and working methods. Alongside made work, the role of representation in the design process is also explored.

Learning Outcomes

- A1: Demonstrate knowledge of the application of innovative fabrication technologies and methodologies in the production of architectural constructs.
- A3: Demonstrate knowledge of timber properties and production with respect to its use as a construction material.
- A4: Understand innovative application of timber in architecture through digital design and fabrication techniques.
- A7: Demonstrate knowledge of the application of structural design tools and methodologies in the production of architectural constructs.
- B2: Research contemporary and traditional construction technologies and be able to identify and characterise relevant typologies and built precedents.
- B3: Synthesise these technologies to develop and communicate advanced approaches to design and construction.
- B4: Produce detailed design information for fabrication and construction.
- B5: Demonstrate practical skill competency in the processes of fabrication and the ability to make informed pragmatic judgments concerning methods of construction.

- B6: Conduct independent research that incorporates physical prototyping as the focal point of its evidence.
- C2: Communicate effectively with a wide range of individuals visually, orally and in writing.

Submission

- Individual Design Portfolio

Assessment Methods

An individually produced design portfolio documents the processes and outcomes of the student's work. Both exploratory and technical drawings form part of the submission and should be used critically to analyse the work and articulate a clear design-research focus or area of interest.

The portfolio should include a short-written reflection on design intentions, making processes and technical investigation. Students are to take a considered, inventive and critical approach to representing and documenting their project. The altered, reciprocal, role of representation when working in a design-make mode should be captured by collating and documenting the process as it goes along and using representative modes to both drive the work and reflect on it.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- The work demonstrates a systematic understanding and critical awareness of relevant contextual factors at Hooke Park
- The work addresses the site conditions - topographic, environmental and material
- The work demonstrates analysis of the given brief in response to the context above.
- A clear technical strategy is developed within the project
- A range of critical precedents, methodologies, practices and/or tools at the forefront of the discipline are investigated.

Approach and synthesis

- An integrated technical, environmental and aesthetic method is demonstrated
- The work demonstrates the application of research into precedents, contemporary technologies, materials and processes.
- Environmental, material and technical knowledge acquired and/or findings are synthesised into a self-directed and critical decision-making process, demonstrating originality in tackling problems
- The work shows an informed approach towards regenerative design
- The work demonstrates both independent learning and the ability to work in a group and the skills required for continuing professional and academic development.

Resolution and communication

- The work demonstrates the ability to analyse and refine technical concepts, communicating sound judgements and a critical understanding of the implications of technical design decisions.
- Through resolution, the project addresses the aesthetic, programmatic and functional requirements of the brief.
- The work is structured and organised effectively and communicated through advanced visual, verbal and written communication techniques.

TITLE	FORCE, MATERIAL, FORM SEMINAR		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	James Solly	Term	2
Learning Methods	Bi-Weekly seminar sessions	Credits	0 (Supporting programme content)

Synopsis

The course delivers practical taught sessions and seminars covering an introduction to structural design and specifically on the use of timber material properties within this context. The sessions will include technical lectures, introductions to engineering analysis software and practical testing sessions.

Aims

The course supports students in their project work by covering material and structural engineering principles relating to the project brief.

Content

- Structural principles for architectural design
- Timber material properties
- Physical testing of materials including data recording and assessment
- Simulation, computation and relevant software solutions for different design challenges

Learning Outcomes

- A3: Demonstrate knowledge of timber properties with respect to its use as a structural material.
- A7: Demonstrate knowledge of the application of structural design tools and methodologies in the production of architectural constructs.
- A8: Demonstrate knowledge of testing and data recording methodologies to determine structural properties of materials or assemblies.
- C1: Carry out critical and technical analyses of design and construction proposals.

Submission

- N/A

TITLE	CORE STUDIO/THESIS – DESIGN MAKE STUDIO		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Emmanuel Vercruysse, Kate Davies, Will Gowland, James Solly, Sam Turner-Baldwin	Terms	3 and 4
		Credits	100
Learning Methods	Tutorials Seminars Juries Lectures Workshop tutoring Self-directed learning	Workload	1,000 hours study, inclusive of teaching contact:100 hours teaching/ 900 hours self-directed study

Synopsis

The Core Studio Project consists of the design, making and analysis of speculative architectural prototypes at Hooke Park which form the primary evidence for the Thesis.

Aims

The Core Studio Project focuses on the production of a speculative architectural proposal resulting in a scale models, component or prototypes. The range of research topics within these projects can encompass interests in environmental and construction technologies, alternative forms of design practice, or issues relating to material and cultural landscapes. The core aim is for the student to developed advanced knowledge and critical understanding of architectural production through making and to reflect on this work in a focused individual written Thesis.

Working individually or within groups, the work will take the form of prototypes, models and built demonstrators and is driven by a defined research focus. The work seeks to harness visceral embodied engagement with the ‘stuff’ of architecture in pursuit of inventive, unpredictable propositions.

Students develop a statement of design research intent. The full formulation and development of the work takes place by designing through making. The final work is informed by iterative cycles of drawing, modelling, scale and 1:1 tests, and is underpinned theoretically by the Thesis. All design development and fabrication processes must be rigorously documented and discussed in the Portfolio. Several presentations of the design proposal and preliminary prototypes are held for feedback and critique.

Prototyping starts early to inform design strategies and students engage with a phase of continuous fabrication.

Learning Outcomes

- A1: Demonstrate knowledge of the application of innovative technologies and methodologies in the production of architectural constructs.
- A2: Demonstrate critical awareness of advanced digital design techniques, the realms of their application, and their relative merits when integrating design and production.
- A3: Demonstrate knowledge of timber properties and production with respect to its use as a construction material.
- A4: Understand innovative application of timber in architecture, including through digital design and fabrication techniques.
- A5: Demonstrate systematic knowledge of the historical and theoretical bases of design-make approaches and the relationship between ideas and technique in architecture.

- A6: Understand the current thinking within contemporary critical discourse surrounding landscape in relation to natural resource extraction and the sustainable application of biogenic materials in architecture
- A7: Demonstrate knowledge of the application of structural design tools and methodologies in the production of architectural constructs
- A8: Demonstrate knowledge of testing and data recording methodologies to determine structural properties of materials or assemblies
- B1: Conceive, produce, represent and articulate a comprehensive design research proposition
- B2: Research contemporary and traditional construction technologies and be able to identify and characterise relevant architectural typologies and built precedents.
- B3: Synthesise these technologies to develop and communicate advanced approaches to design and construction.
- B4: Produce detailed design information for fabrication and construction.
- B5: Demonstrate practical skill competency in the processes of fabrication and the ability to make informed pragmatic judgements concerning methods of construction.
- B6: Conduct independent research that incorporates physical prototyping as part of its evidence.
- C1: Carry out critical and technical analyses of design and construction proposals
- C2: Communicate effectively with a wide range of individuals visually, orally and in writing, including within interdisciplinary professional teams.
- C3: Formulate clear and appropriate hypotheses and arguments and apply these within a research agenda.
- C4: Continue expanding knowledge using the skills acquired.

Submission

- Individual Design Portfolio & Prototypes
- Thesis

Individual Design Portfolio & Prototypes
An individually produced comprehensive design portfolio documents the processes and outcomes of the student's work, from concept to prototype. Students should be rigorous in both representing and analysing the work. Both exploratory and technical drawings form part of the submission and should be used to articulate a clear design-research agenda and critically reflect on the work.

The portfolio should include a short-written reflection on design intentions, making processes and architectural investigation.

Students are to take a considered, inventive and critical approach to representing and documenting their project. The altered, reciprocal, role of representation when working in a design-make mode should be captured by collating and documenting the process as it goes along and using representative modes to both drive the work and reflect on it. Students are encouraged to experiment with diverse modes of documenting and analysing acts of making architecture, including time-based media.

Thesis
MArch students produce their 4,000-word individual Thesis in Term 4. The thesis develops a propositional argument that critically reflects upon and tests ideas and strategies in support of the physical work.

It is an opportunity to expansively research ideas, to follow curiosity, to cultivate knowledge. As such each MArch student develops a field of research interests in Term 2 and is then supported in formulating an original individual thesis question in term 3 that is developed into a thesis argument in term 4. The thesis is a platform for proposing, testing, resolving and critically reflecting upon strategies deployed in the made work but also to develop test and refine aspects of each student's practice beyond Hooke Park, to use the unique spatial and temporal qualities of Hooke Park to think. The thesis itself is a composition; composed and edited academic writing but also the physical form of the thesis might be designed to articulate and support the ideas proposed by the thesis. Upon submission the physical thesis itself will become a part of the remarkable library of theses, dissertations and fabrication logbooks at Hooke Park.

The research is to be original, relevant, ambitious (and focused and feasible), and be directly related to the Hooke Park context and developed as a continuation of its research trajectories. The work is critiqued in its broader cultural context, applicability within architecture, and opportunities for further research.

The Thesis should formulate a specific question and develop an argument on the theory or practice of architectural design within a design-build context. It should be propositional, in the sense of proposing and testing an idea and should form a constructive, concise argument that informs and enriches the outcome of the main built project and draws a clear conclusion.

Assessment Methods

Students are assessed individually through the Portfolio, the prototypes themselves and the Thesis.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Research and knowledge acquirement
Research into the chosen area of study is independently undertaken, demonstrating a comprehensive understanding and critical awareness of the relevant social, political, historical, theoretical, economic, environmental and/or ethical contexts, concepts, ideas and/or precedents at the forefront of the discipline, being addressed through systematic enquiry.

Approach and development
The work submitted demonstrates an inventive and original approach to the consolidation and development of research, with a consistent process of synthesising acquired knowledge is evidenced in the work. The structures, methods and/or tools utilised in the production of the work demonstrate initiative, self-directed learning, the ability to work in a group where necessary, and the skills to make complex decisions.

Argument and communication
The work demonstrates the ability to devise and sustain complex arguments, contextualised effectively in a wider field of relevant ideas with a critical position determined. Conclusions and/or reflections are well executed, with good judgement shown in the absence of complete data. Written and visual communication skills are evidenced to a high standard throughout, and the work demonstrates the abilities developed to undertake further research.

SECTION 5:

PG MArch IN EMERGENT TECHNOLOGIES AND DESIGN

5.1 PROGRAMME INTRODUCTION

Emergent Technologies and Design Post-Graduate Programme (inaugurated in 2001) offers two degrees of Master of Science (12 months) and Master of Architecture (16 months) and is open to graduates in architecture and engineering who wish to develop skills and pursue knowledge in architectural design science that is located in new production paradigms. The programme continues to investigate new synergies of architecture and ecology through the critical intersection of computational design and advanced fabrication. Its focus is on exploring the experiential, social, and cultural potentials of new material and spatial configurations for architectural, urban, and ecological design solutions situated in the dynamic contexts of emerging biomes. The programme is designed to stimulate critical thinking through experience of research-driven design projects that are developed in an intellectually rigorous and creative studio environment. EmTech projects are pursued by multiple iterations through hypothesis, material and computational experimentation, advanced fabrication including robotics, and evaluation, reflected upon in verbal presentations and group discussions and documented in analytical and scientifically structured papers.

Emergent Technologies and Design (EmTech) program showcases an interdisciplinary approach, weaving together diverse disciplines to redefine the role of architectural education and the architect, in particular. The curriculum integrates advanced principles from engineering, computer science, biomimetics, and material sciences with critical insights from sustainability, urbanism, ecology, and complexity theory.

Key to EmTech’s approach is its workshops and seminars that emphasize computational design and physical fabrication, allowing students to engage directly with both digital and hands-on production techniques. This integration enables the exploration of sustainable design solutions inspired by biological systems through biomimetics, enhancing the ecological responsiveness of architectural projects. Moreover, the program challenges traditional boundaries by incorporating complex system theories and advanced digital fabrication, including robotics, into the core of its academic exploration. This fosters a learning environment where theoretical knowledge meets practical implementation, equipping students with the necessary skills to innovate within the rapidly evolving field of architecture.

EmTech's dissertations reflect this interdisciplinary ethos, with projects that not only address theoretical and material innovation but also tackle pressing global issues such as urban sustainability and ecological resilience. Through this comprehensive educational approach, EmTech prepares its graduates to lead and innovate in addressing the multifaceted challenges of contemporary architecture and urban design.

EmTech offers both MSc and MArch degrees. The MSc focuses more on developing skills and pursuing knowledge in architectural design science within new production paradigms, emphasizing computational design and fabrication methodologies to address real-world design problems and contexts. The MArch, while sharing a common emphasis on innovation and technology integration, allows for a deeper engagement in architectural design processes, considering the practical application and execution of design projects across a range of scales, including material experimentation, architectural configurations, as well as urban and ecological solutions. Both degrees involve rigorous experimentation and research but engage with different scales of implementation in their application strategies.

Our PG MArch programme has two distinct phases – the Studio and the Dissertation. Both Studio and the Dissertation are aligned with and supported by the research of the programme team and the advanced expertise our alumni and research colleagues in practice and industry.

5.2 AIMS

The programme is designed to build skills, knowledge and to stimulate critical thinking through the experience of research driven design projects that are developed in an intellectually rigorous and creative studio environment. Our projects are pursued by multiple iterations through hypothesis, material and computational experimentation, robotic fabrication, and evaluation; reflected upon in verbal presentations and group discussions and documented in analytical and scientifically structured papers.

Design Research is central to the agendas of Emergent Technologies and Design, and the programme proceeds from the fundamental premise of a shared understanding between staff, students, researchers, and collaborators across the world that nature and artifice are strongly coupled, that the cultural production of artefacts and systems exist as part of the environment of other active systems, and that they are subject to change. They also share an understanding that causality of change is complex and multi-scalar, that the dynamics of change are perturbed and accelerated by human activities, and they share a concern for the consequences of those changes to society and the natural world. Design processes in this domain are developed through iterative computational processes of serial experimentation and analysis, generative propositions, and simulations. The programme is structured to provide skills and knowledge of a coherent set of linked and convergent discourses, methodologies, and concerns that cross multiple disciplines in the Studio, and the opportunity to further develop those skills and deepen knowledge in the Dissertation.

While climate change continues to intensify, as designers, architects, and engineers we have a crucial role in designing structures and settlements that can withstand extreme weather conditions and adapt to variable biomes. We will need to incorporate resilience into our designs and consider their environmental impact, ensuring that our design solutions can endure extreme climatic events such as hurricanes, floods, and extreme heat or cold. Furthermore, we need to consider the local ecosystems we are proposing solutions for and aim to create designs that integrate with and support the surrounding environment, rather than disrupt it. As extreme ecological events and climate change become the new norm, we will need to create designs to help mitigate their effects, while also preparing for their impacts. In EmTech, we aspire to equip ourselves for what lies ahead.

The Studio (Core Modules 1/2A/2B/3A/3B/4 and Elective) comprises workshops, seminars, electives, and design projects that are led by EmTech staff and our associated researchers and offers a creative and intellectually rigorous sequence of study that builds knowledge and skill. It provides an intensive engagement in Design Science and introduces our students to the wider community of design researchers in global practices. It concludes with guiding students through the formation of a detailed proposal for an original architectural inquiry that is to be pursued in the Dissertation.

The Dissertation Research Studio (Core Studio / Thesis) extends the acquisition of research competencies through extensive collaborative dialogue with EmTech's research community of active Post Doc researchers and PhD candidates. The principal domains of our design research are positioned at the confluence of two major research trajectories:

- Dynamic Material Systems with Advanced Fabrication – focused on advanced fabrications and assembly technologies applied at the scale of medium/large buildings and/or landscapes.
- Ecological Urban Design in Emergent Biomes - focused on algorithmic design for metabolic models of new cities and settlements and their integrated technologies at the scale of an ecologically defined landscape such as a shoreline, river valley, delta or hillside.

Students integrate explorations of the theoretical discourses, relevant sciences and case studies of 'state of the art' projects in the domain of their chosen topic and set out the methods and protocols for the development of their Design Proposal. The development and conclusion of the final proposal is pursued through the iterative design cycles in which students have acquired knowledge and skills during the early phases of the programme.

Design and Build is our 'extracurricular' collaborative student project and is an essential part of the pedagogy and culture of EmTech. It runs right through the year, alongside both Studio and the Dissertation, and provides opportunities to design and deliver a built project with real material, structural, fabrication and assembly constraints. The experience gained enhances the design, computational and analytical skills students have acquired in Studio, and it develops crucial transferrable skills that are applicable to professional practice. Our Design and Build projects have been published internationally in the architectural press since 2001 and have received industry awards.

5.3 LEARNING OUTCOMES

INTENDED LEARNING OUTCOMES: PG MArch in Emergent Technologies and Design; FHEQ LEVEL 7	
Learning Outcomes 'LO'	Aligned to the Framework for Higher Education Qualifications (FHEQ) and QAA Subject Benchmark (Architecture), on successful completion of the PG MArch in Emergent Technologies and Design students will be able to:
A	**Knowledge and Understanding**
A1	Assimilation of the programme material and familiarity with concepts, techniques, and strategies in the field of Emergence.
A2	Assimilation and familiarity with material processes and advanced manufacturing techniques.
A3	Assimilation and familiarity with advanced digital and mathematical design techniques.
A4	Assimilation and familiarity with advanced digital structural and environmental analysis.
B	**Subject Specific Skills and Attributes**
B1	Demonstration of clear and appropriate formulation of hypotheses and arguments, and the ability to deploy these for the planning and pursuit of a research agenda.
B2	The ability to conduct comparative analysis and produce meaningful generalization.
B3	Demonstration of clear structure, precise writing and presentation of work; referencing of sources, information using agreed conventions.
B4	The development of critical faculties and advanced design skills.
B5	Demonstration of judgment and appropriate application of research material and technical knowledge to design and material experiments.
B6	Demonstration of capacity to apply acquired knowledge and techniques in a creative and innovative way to a comprehensive architectural design and to its material construction.
B7	Demonstration of capacity to apply the acquired knowledge and techniques in a creative and innovative way to a general architectural construction type and material system, or to a developed and tested generative strategy of architectural design.
C	**Transferable Skills and Attributes**
C1	A thorough knowledge of the specific concepts, techniques and practices in the field of Emergent Technologies and their effect on the production of built architectures and artefacts.
C2	Capacity for critical and technical analysis.
C3	The ability to construct Case Studies by applying critical and technical analysis to historical modes of construction.
C4	The ability to connect analysis to design philosophies and material strategies and relate them to industrial processes and production.
C5	Skills in developing and pursuing architectural and technical research in the field of Emergent Technologies, and in presenting research findings individually and as part of a group.
C6	The ability to contribute to interdisciplinary professional teams.

5.4 ASSESSMENT CRITERIA

All learning outcomes must be met in order to achieve a pass overall. The assessment of submitted work is based on the following overall assessment, in addition to specific ones given for each module. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Design

Context and analysis
The work demonstrates a systematic understanding and critical awareness of relevant contextual factors such as site conditions, social, political, historical, economic, environmental, and ethical issues. Analysis is undertaken in relation to the needs of the intended user groups and the complexities of the location. Appropriate conceptual, critical and/or technological precedents, methodologies, practices and/or tools inform the parameters of the brief, satisfying specific contextual and analytical requirements.

Process and synthesis
Research into appropriate contextual, conceptual, critical and/or technological precedents, methodologies, practices and/or tools is synthesised into the design process, allowing for creative decision-making, inventive design strategies, experimentation, and originality, explored from both user and designer perspectives. Feedback is integrated into a self-directed design process that demonstrates criticality and independent learning skills, and the ability to work in a group where necessary, required for continuing professional and academic development.

Resolution and communication
Design proposals are resolved to a satisfactory standard based on the functional and contextual criteria and/or project themes set by the brief, with appropriate methodologies deployed in the production of appropriately ambitious propositional design work. Project work is organised, structured, and communicated effectively through a range of considered representational methods and visual, verbal, and written skills.

Technology

Context and analysis
The work demonstrates a systematic understanding and critical awareness of relevant contextual factors such as site conditions, social, political, historical, economic, environmental, and ethical issues that influence the technical strategy developed in the project and its overall impact on the climate where necessary. A range of critical precedents, methodologies, practices and/or tools at the forefront of the discipline are investigated to inform the environmental and technical parameters of the brief.

Approach and synthesis
An integrated technical, environmental, and contextual method is demonstrated through the application of research into precedents, contemporary technologies, materials, and processes. Environmental and technical knowledge acquired and/or findings are synthesised into a self-directed and critical decision-making process, demonstrating originality in tackling problems, an informed approach toward a regenerative approach to design, independent learning, and the ability to work in a group if necessary, and the skills required for continuing professional and academic development.

Resolution and communication
The work demonstrates the ability to analyse and refine technical concepts, communicating sound judgements and a critical understanding of the implications of technical design decisions at a range of scales over the lifecycle of the project. Through resolution, the project addresses the contextual, programmatic and functional requirements of the brief. The work is structured and organised effectively and communicated through advanced visual, verbal, and written communication techniques. The PG MArch dissertation is required to demonstrate the capacity to apply the acquired knowledge and techniques in a creative and innovative way to a material prototype, to the system in which it is embedded, to its fabrications and assembly, and that is developed and evaluated within the context of a climatic or ecological set of parameters.

History & Theory

Research and knowledge acquirement
Research into the chosen area of study is independently undertaken, demonstrating a comprehensive understanding and critical awareness of the relevant social, political, historical, theoretical, economic, environmental and/or ethical contexts, concepts, ideas and/or precedents at the forefront of the discipline, being addressed through systematic enquiry.

Approach and development
The work submitted demonstrates an inventive and original approach to the consolidation and development of research, with a consistent process of synthesising acquired knowledge is evidenced in the work. The structures, methods and/or tools utilised in the production of the work demonstrate initiative, self-directed learning, the ability to work in a group where necessary, and the skills to make complex decisions.

Argument and communication
The work demonstrates the ability to devise and sustain complex arguments, contextualised effectively in a wider field of relevant ideas with a critical position determined. Conclusions and/or reflections are well executed, with good judgement shown in the absence of complete data. Written and visual communication skills are evidenced to a high standard throughout, and the work demonstrates the abilities developed to undertake further research.

Professional Practice

Knowledge acquirement
The work analyses and reflects upon developments and insights at the forefront of the profession of architecture. Relevant contextual information and/or precedents are critically evaluated in order to inform the parameters of an appropriately clear and complete representation of the subject matter.

Integration and synthesis
The work demonstrates the ability to work independently and, in a group, where necessary, integrating and synthesising contextual information and acquired knowledge through a systematic method, evidencing self-direction, originality and the ability to respond critically to the subject matter.

Clarity of communication
The work elucidates concepts, facts and opinions in an analytical manner, evidencing the ability to construct and maintain a critical position. The work is structured and organised effectively, demonstrating good use of written and visual communication skills and the independent learning ability required for continuing professional development.

5.5 CREDIT FRAMEWORK

Term	Course Title	Credits
1	Core Module 1 – Design and Technology	10
1	Core Module 2a – Natural Systems and Biomimetics	10
1	Core Module 2b – Design I: Digital and Material Fabrication	15
2	Core Module 3a – Emergence and Evolutionary Computation	10
2	Core Module 3b – Design II: Ecological Urban Design	15
1 + 2	Climate and Ecological Systems in Design Science	10
1, 2, 3	Core Module 4 – Critical Discourses	10
3 + 4	Core Studio/Thesis – The Dissertation	100
2, 3, 4	Design and Build	0 (supporting programme content)

5.6 TEACHING AND LEARNING METHODS

A distinguishing characteristic of the programme is the emphasis on the team, and the skills and knowledge developed in collaborative learning, research, and design. Students work in small teams in studios, workshops, and seminar courses, and for their Dissertation choose their own team and topic. This is a reflection of the way in which architects work in the professional world, and in academic research in the Design Sciences. Both in the Studio and Dissertation phase, emphasis is placed on the balance between individual and group work, and the importance of critical reflection. Individual intellectual and critical development is reflected in the personal essays that each student undertakes and submits during The Studio, and in the individual Critical Reflection that each student develops and submits with their Dissertation.

Design processes in this domain are distributed and collaborative, and are explored, developed, and refined through iterative computational processes of serial experimentation and analysis, generative simulations, and material fabrication. The programme is structured to provide skills and knowledge of a coherent set of linked and convergent discourses, methodologies and concerns that cross many different disciplines in The Studio stage, and those skills are further developed, and knowledge deepened in The Dissertation stage.

Teaching strategies reflect this modality of research and design. Each member of the teaching team has their own speciality and active personal research, but also contributes to coordination of the agendas and delivery of each module and workshop, and to the programme as a whole. One or two members of the teaching team lead modules and workshops, but all teaching staff collectively attend key interim and other internal presentations to offer critical commentary and advice to clarify and develop the student work.
Student life in the programme provides additional opportunities for learning as all tutorials and instructions take place in open studio, and students attend and participate in all presentations by their colleagues in the programme. The programme facilitates the self-organisation of study groups and workshops for additional software skills in the evenings and weekends. For these reasons attendance in studio is mandatory Monday to Friday and is monitored.

Course Participation
Participation in seminars, workshops, and modules, and in studio generally is constantly monitored in studio discussions, design tutorials, and at presentations. If teaching staff have observed a lack of adequate participation, the student will receive a formal written warning from the Programme Director and is required to attend a mandatory meeting with teaching staff tutors to review participation and learning progress. Failure to improve participation to suitable levels results in the student being asked to repeat Phase I studies in the programme in the following year, or in extreme cases, leave the programme permanently. Students of this programme and others in the AA School receive an intense, highly supervised and closely monitored learning experience. It is the responsibility of all students to ensure that the arrangements of their personal circumstances (including payment of tuition fees) enable them to participate in all aspects of their course/programme of study. Details of the processes and requirements outlined above are set out in Section 17, Attendance and Attendance Management Procedures of the Academic Regulations. Appeal procedures regarding these decisions are also summarised in the AA School Academic Regulations.

The Studio (Core Modules)
The Studio workshops, seminars and design projects are led by EmTech staff and our associated researchers and offer a creative and intellectually rigorous sequence that builds knowledge and skill. It provides an intensive engagement in Design Science and introduces our students to the wider community of design researchers in London practices. It concludes with guiding students through the formation of a detailed proposal for an original architectural inquiry that is to be pursued in the Dissertation.

The teaching team and invited guests give tuition in studio, and students develop their skills and knowledge through research and design experiments. The Studio introduces a range of concepts and methodologies, and students document their work and make regular presentations. These are brought together and presented at the end of each course in a final presentation for critical advice, and in the compiled final documents submitted for assessment. The documents describe the work undertaken by the student team, the rationale for the decisions made, analyses and critically reflects upon the output, and situates the work in its theoretical, research and professional domains. Tutorials aid students in focusing and developing their submissions.

The Seminar courses embedded in The Studio have a common structure and method, with appropriate variation in delivery. Students are asked to read preparatory or follow up material, and make short group or individual presentations of work set at the end of each session. Each course has a written submission by the student team that documents the work undertaken, and an individual essay that critically reflects upon the work undertaken by their team, and situates in its theoretical, research and professional domains. Tutorials aid students in focusing and developing their submissions.

The Seminar courses are supported by a series of workshops that run throughout the Studio. More information on the seminar courses and workshops can be found in the Programme Handbook.
In Term 1, the programme offers 1 open module as part of the school-wide Electives programme: Climate and Ecological Systems in Design Science. For EmTech students, this elective is mandatory, and they may audit another suitable module offered by other programmes at the AA.

Thesis Formation takes place in studio in an intensive and highly structured week in the beginning of Term 3. Morning sessions are focused on topic discussions, exchanges and negotiations, and the afternoon sessions in writing proposals that are in turn presented and discussed the following morning. Dissertation Proposals are submitted at the end of the week, with sharply defined Abstracts, Ambitions, Methods and Domain statements. The proposals are reviewed by the teaching team, discussed with the students, reworked if necessary, and formally accepted.

At the conclusion of The Studio, all assessments of work submitted for the modules of the Studio are reviewed together with the Dissertation Proposal and students are then notified of progression to The Dissertation stage.

The Dissertation (Core Studio/Thesis)
PG MArch students produce their 15,000 – 20,000-word Dissertation for submission at the end of the 16-month programme.

The third and fourth term are entirely dedicated to the production of the Dissertation, with continuous review and supervision in Studio by the teaching team. Tutorials are scheduled each week in advance. Students review and synthesize the analyses, research, and case studies of the practices of design and production particular to the research topic. In the Research and Design Studio - Term 3 - students develop two chapters of their Dissertation from the Dissertation proposal, The Domain and the Methods, and pursue design experimentation appropriate to the central arguments and technical propositions. Supporting documentation of analysis, research conclusions, and strategic design decisions and argumentation in support of the Dissertation is written and refined. In addition to the scheduled weekly tutorials, regular presentations are made, and critical advice offered by the entire teaching team and invited guests.

Term 4 is focused on the design development and testing, and the final design proposal is produced, analysed, critiqued and refined. Tutorial arrangements, regular presentations and critical advice are similar to those in Term 3. The final presentations are to a panel of invited guests from practice and academia, and their critical advice is focused on the necessary steps to complete the Dissertation, and the finished document of the Dissertation is compiled and submitted.

5.7 COURSES

TITLE	CORE MODULE 1 – DESIGN AND TECHNOLOGY		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Milad Showkatbakhsh, Anna Font, Abhinav Chaudhary, Danae Polyviou, Paris Nikitidis, Krishna Bhat	Term Credits	1 10
Learning Methods	Lectures Seminars Workshops Tutorials Juries Self-directed learning	Workload	100 hours study, inclusive of teaching contact: 40 hours teaching/60 hours self-directed study

Synopsis

The Design and Technology seminar builds techniques and methods to develop proposals with advanced computational design, analysis, and fabrication strategies. A range of computational form-finding and analysis methods are introduced alongside the induction of C# programming and advanced digital fabrication techniques. Associations between the digital process of design and the physical world of fabrication and materiality are going to drive the experimentation and analysis stages. Initial experiments conducted by each design team will conclude with a working prototype of their design proposal. A combination of structural, morphological, and performance-related parameters are incorporated in the final prototypes through material and geometrical differentiation.

Aims

The seminar aims to engage analytical tools as methods for generative design, explores a variety of computational workflows, and includes seminars and hands-on workshops in the exploration of scientific methods applied to architectural design research, concentrating on experimentation, analysis, evaluation and decision-making processes.

Content

Areas of investigation include:

- Algorithmic reasoning and computationally informed generation and analysis of forms and behaviours
- C# Programming
- Structural Analysis
- Environmental Analysis
- Computational Fluid Dynamics (CFD)

Learning Outcomes

- A2, A3: Understanding of materials/material processes, modelling and digital fabrication techniques.
- B5: Development of experimental method and strategies in physical and digital experiments.
- B6, B7: Demonstration of the capacity to apply acquired knowledge and techniques in a creative and innovative way to a material system, its fabrication and assembly processes.
- A3: Assimilation and familiarity with advanced digital and mathematic design techniques.
- A4: Assimilation and familiarity with advanced digital structural and environmental analysis.

- C1: A thorough knowledge of the specific concepts, techniques and practices in the field of Emergent Technologies and their effects on the production of built architectures and artefacts.
- C4: The ability to connect analysis to design philosophies and material strategies, and relate them to processes of production.

Submission

- Team submission

Assessment Methods

Document assessments are carried out independently by at least 2 Programme Staff.

Document Submission (Team): The document presents the aims of the design experiments, the logics and processes developed and the analysis of their properties and performance in relation to Design and Technology. The relationships between mathematical models and physical prototyping are interrogated, and computational models are used to discover material-driven and geometrical interdependencies. The developed computational workflows are used to explore a family of possible outcomes that are analysed and evaluated based on chosen criteria. Correlations between initial physical experiments and computational models are formulated to provide feedback between digital and physical domains. The team dossier includes a critical account of the experiments, their rationale, computational and analytical models, and the physical prototype.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis
The work demonstrates a systematic understanding and critical awareness of the concepts, strategies, and analytical tools of Design & Technology. Appropriate critical and/or technological precedents, contextual factors, methodologies, practices and/or tools inform the parameters of the brief, satisfying specific contextual and analytical requirements.

Process and synthesis
Research into the appropriate contextual, critical and/or technological precedents, methodologies, practices and/or tools is synthesised into the design process, allowing for creative decision-making, inventive design strategies, experimentation and originality. The work demonstrates knowledge and skills of geometrical and topological analysis, digital morphogenesis and computational design processes, material behaviour, digital fabrication techniques and assembly processes, and the appropriate deployment of that knowledge and skills in an integrated process. Feedback is integrated into a self-directed design process that demonstrates criticality and independent learning skills, and the ability to work in a group where necessary, required for continuing professional and academic development.

Resolution and clarity of communication
Design proposals are resolved to a satisfactory standard based on the functional criteria and/or project themes set by the brief, with appropriate methodologies deployed in the production of appropriately ambitious propositional design work. Project work is organised, structured and communicated effectively through a range of considered representational methods and visual, verbal and written skills. The work elucidates hypothesis, research, and experimentation in an analytical manner, evidencing the ability to construct and maintain a critical position, and the skill to place this in the theoretical context of Design Science. The work is structured and organised effectively, demonstrating good use of written and visual communication skills and the independent learning ability required for continuing professional development.

TITLE	CORE MODULE 2a – NATURAL SYSTEMS AND BIOMIMETICS		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Milad Showkatbakhsh, Anna Font, Abhinav Chaudhary, Danae Polyviou, Paris Nikitidis, Krishna Bhat	Term Credits	1 10
Learning Methods	Lectures Seminars Tutorials Juries Self-directed learning	Workload	100 hours study, inclusive of teaching contact: 40 hours teaching/60 hours self-directed study

Synopsis

This course examines the ways in which biological organisms achieve complex emergent structures and performances from simple components, relating this to an exploration of architectural systems. The aim is to suggest the possibility of innovative system designs proceeding from a logical strategy derived from an analysis of natural systems. The seminar will focus on an in-depth study of a natural system, through its material organisation, material logics, form, energy flows and behaviour and the design principles extracted.

In groups, students will explore natural systems with variable stiffness, novel jointing strategies, surface adaptability or responsive mechanisms to investigate mathematic, geometric, material and hierarchical logics and their applications to architectural systems. The seminar is organised in three phases.

Aims

The course aims to develop an understanding of how biology can be a model for material, mechanical, spatial and computational systems. An introduction to the ways in which organisms have evolved through form, materials and structures in response to varied functions and environments is followed by an account of engineering, logical and organisational design principles that have been abstracted from nature in current research projects for industry and material science. A study is made of a natural system (general form, anatomy, energy flows, geometry, organisation, hierarchies and behaviour), along with an exploration of interrelations and an abstraction of design principles. The methods of analysis as well as system logics and material performance studied in this seminar will be further developed and investigated within Design I. Student groups will examine mathematic, geometric, material and hierarchical logics to develop a critical view on the relationships between systems design and performance.

Content

- Stage 1: Research
- Stage 2: Analysis and Initial Synthesis
- Stage 3: Final Synthesis and System Development

Learning Outcomes

- A1: Acquirement of knowledge of the concepts and principles in the field of Biomimetics, and their potential for the design and production of materials, structures and forms.
- B1: Acquirement of an understanding of how to abstract processes and parameters from a natural being situated in a specific environment.

- B5: The development of the ability to design an 'experiment' using computation tools abstracted from a natural system to generate forms and structures, and to use analytical methods to evaluate the results.
- B6: Acquirement of skills in working in biomimetic design.
- B3, C5: Acquirement of skills in the documentation and presentation of the aims and context of the design experiment, the process, products and the analysis of the results.

Submission

- Team Document submission
- Individual Essay (1,000 words)
- Integrated Computational Pipeline (implemented as a Grasshopper plugin)

Assessment Methods

Document assessments are carried out independently by at least 2 Programme Staff.

Document Submission (Team): The document presents the aims of the physical and digital design experiments, the logics and processes developed and the analysis of their properties and performance in relation to Biomimetics. The relationships between morphological models and mathematical models are interrogated, and parametric models will be used to discover material, geometrical, logical, computational and scaling limits of the abstracted systems. The developed parametric models are used to explore a family of possible outcomes and each individual will be analysed and evaluated based on chosen criteria. The team dossier includes a critical account of the experiments, their rationale and context, and a set of physical, computational and analytical models. It is expected that the document clearly presents observations and critical reflection of the experiments.

Grasshopper component submission (Team): A custom-made Grasshopper component (.gha) that performs specific computational tasks, mathematical operations, or geometric transformations that are specific to the computational system explored in the seminar course.

Document Submission (Individual): An individual 1,000-word critical essay is to be submitted that explores aspects covered in the seminar course. This essay should reflect on the theoretical and conceptual framework of biology as a model for architectural design and relate the work undertaken throughout the seminar to relevant references. Course material including compiled abstracts, readers and reading lists provide a starting point, but it should be noted that the submission is intended to extend beyond the limit of public domain information. Students are expected to research across several different disciplines. The document reflects upon the personal skills and knowledge gained and how they can be further developed in the future, together with a commentary on their participation and contribution to the team and the results.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis
The work demonstrates a systematic understanding and critical awareness of theories, practices and technologies of Biomimetic Design. Appropriate critical and/or technological precedents, contextual factors, methodologies, practices and/or tools inform the parameters of the brief, satisfying specific contextual and analytical requirements.

Process and synthesis
Research into the appropriate biomimetic system, technological precedents, and methodologies is synthesised into the design process, allowing for creative decision-making, inventive design strategies, experimentation and originality. The work demonstrates a clear formulation of a hypothesis, and an ability to plan and pursue a critical agenda for research into the performance of structure, material and organisational systems in biological and architectural systems. Feedback is integrated into a self-directed design process that demonstrates criticality and independent learning skills, and the ability to work in a group where necessary, required for continuing professional and academic development.

Resolution and clarity of communication
Design proposals are resolved to a satisfactory standard based on the criteria set by the brief, with appropriate skills, analytic reasoning, and methodologies deployed in the production of potential component systems and performance criteria for architecture derived from Biomimetic research. Project work is organised, structured and communicated effectively through a range of considered representational methods and visual, verbal and written skills. The work elucidates hypothesis, research, and experimentation in an analytical manner, evidencing the ability to construct and maintain a critical position, and judgement in the deployment of research material and knowledge gained from Biomimetic research. The work is structured and organised effectively, demonstrating good use of written and visual communication skills and the independent learning ability required for continuing professional development.

TITLE	CORE MODULE 2b – DESIGN I: DIGITAL AND MATERIAL FABRICATION		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Milad Showkatbakhsh, Anna Font, Abhinav Chaudhary, Danae Polyviou, Paris Nikitidis, Krishna Bhat	Term Credits	1 15
Learning Methods	Lectures Seminars Workshops Tutorials Juries Self-directed learning	Workload	150 hours study, inclusive of teaching contact: 30 hours teaching/120 hours self-directed study

Synopsis

Design I – Digital and Material Fabrication explores physical and digital computational techniques used to develop the architectural qualities of different material systems adapted for specific climatic contexts. Digital models will explore possibilities in response to various environmental parameters while physical models will explore the integration of material behaviour and robotic fabrication processes. Techniques derived from the concepts and knowledge of the hierarchical organisation of biological systems and computational models, developed in the seminar Course 'Natural Systems and Biomimetics', will be implemented. The opportunities and limitations of selected robotic fabrication techniques will be associated with the material organization, fabrication, and assembly workflows of a one-to-one scale working prototype.

Aims

The purpose of Design I is to design and develop computational workflow techniques, analyse, and fully fabricate material systems that are situated within EmTech research agenda. The proposed structures should offer a clear spatial layout, and they should be self-standing. Physical models employing various techniques (laser cutting, CNC milling, 3d-printing) will be constructed for the entire structure design at 1:10 scale, while a component / aggregation of components that constitute a part of the structure will be developed at 1:1 or 1:2 scales.

Content

- Stage 1: Robotic fabrication workshop
- Stage 2: System Design
- Stage 3: Material Prototyping

Learning Outcomes

- A2: Understanding of materials/material processes, modelling and digital fabrication techniques.
- B5: Development of experimental method and strategies in physical and digital experiments.
- B7: Demonstration of the capacity to apply acquired knowledge and techniques in a creative and innovative way to a material system.
- A3: Assimilation and familiarity with advanced digital and mathematic design techniques.
- A4: Assimilation and familiarity with advanced digital structural and environmental analysis.
- A4: Assimilation and familiarity with robotic fabrication techniques.
- C1: A thorough knowledge of the specific concepts, techniques and practices in the field of Emergent Technologies and their effects on the production of built architectures and artefacts.
- C4: The ability to connect analysis to design philosophies and material strategies, and relate them to processes of production.

Submission

- Team Document submission
- Integrated Computational Pipeline (implemented as a Grasshopper plugin)

Assessment Methods

Document assessments are carried out independently by at least 2 Programme Staff.

The document presents the aims of the Design Studio, the logics and processes developed and the analysis of their properties and performance in relation to goals of the design project. The relationships between the environmental context, morphological models, and physical prototyping with embedded material properties will be interrogated. Computational models will be used to discover environmental, geometrical, material, and morphological interrelationships to create a hierarchical system of design. Material experimentation coupled with digital prototyping will be used to generate full scale prototypes to analyse and document the relations between computational and physical paradigms. The team dossier includes a critical account of the experiments, its rationale, and context and a set of physical, computational and analytical models. It is expected that the document clearly presents observations and critical reflection of the experiments.

Grasshopper component submission (Team): A custom-made Grasshopper component (.gha) that performs specific computational tasks, mathematical operations, or geometric transformations that are specific to the computational system explored in the seminar course.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis
The work demonstrates a systematic understanding and critical awareness of the concepts, strategies, and analytical tools of Design I. Appropriate critical and/or technological precedents, contextual factors, methodologies, practices and/or tools inform the parameters of the brief, satisfying specific contextual and analytical requirements.

Process and synthesis
Research into the appropriate contextual, critical and/or technological precedents, methodologies, practices and/or tools is synthesised into the design process, allowing for creative decision-making, inventive design strategies, experimentation and originality. The work demonstrates knowledge and skills of geometrical and topological analysis, digital morphogenesis and computational design processes, material behaviour, robotic fabrication techniques and assembly processes, and the appropriate deployment of that knowledge and skills in an integrated process. Feedback is integrated into a self-directed design process that demonstrates criticality and independent learning skills, and the ability to work in a group where necessary, required for continuing professional and academic development.

Resolution and clarity of communication
Design proposals are resolved to a satisfactory standard based on the functional criteria and/or project themes set by the brief, with appropriate methodologies deployed in the production of appropriately ambitious propositional design work. Project work is organised, structured and communicated effectively through a range of considered representational methods and visual, verbal and written skills.
The work elucidates hypothesis, research, and experimentation in an analytical manner, evidencing the ability to construct and maintain a critical position, and the skill to place this in the theoretical context of Design Science. The work is structured and organised effectively, demonstrating good use of written and visual communication skills and the independent learning ability required for continuing professional development.

TITLE	CORE MODULE 3a – EMERGENCE AND EVOLUTIONARY COMPUTATION		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Milad Showkatbakhsh, Anna Font, Abhinav Chaudhary, Danae Polyviou, Paris Nikitidis, Krishna Bhat	Term Credits	2 10
Learning Methods	Lectures Seminars Tutorials Juries Self-directed learning	Workload	100 hours study, inclusive of teaching contact: 25 hours teaching/75 hours self-directed study

Synopsis

Evolutionary Algorithms have been used extensively in recent years to mimic the principles of evolutionary science to solve common real-world problems through search and optimization procedures of single or multiple objectives. Ranging from the fields of economics to politics and music to architecture, evolutionary algorithms have proven to be an efficient problem-solving technique to find multiple trade-off solutions for problems that possess multiple ‘fitness criteria’ (objectives) that are in conflict with one another.

Aims

The aim of the seminar is to introduce the concept of biological intelligence as well as to develop an understanding of its application in design primarily through the development of architectural and urban morphologies. The experimentation phase that comprises the seminar will provide the necessary knowledge for the utilisation of multi objective evolutionary algorithms across a range of scales as well as varying degrees of complexity. Although challenging, once mastered, their application becomes a robust tool in addressing design problems comprising multiple conflicting objectives that hold no clear single design solution.

Content

- Stage 1: Experiment I – Morphological Variation of Towers
- Stage 2: Experiment II – Employing sequential simulation techniques to inform the design and performance optimisation of façade systems for morphologically evolved towers.

Learning Outcomes

- A1, B1: Have acquired knowledge of the concepts and philosophies in the field of Emergence, and their potential for the design and production of materials, structures and forms.
- C1: Have acquired an understanding of the basis of Evolutionary Computation and Generative Design;
- B5: Have developed an ability to design an 'experiment' using evolutionary computation tools to generate forms and structures, and to use physical modelling to test and evaluate the results.
- B4: Have acquired skills in working in Evolutionary Computation and digital design;
- B3, C5: Have acquired skills in the documentation and presentation of the aims and context of the design experiment, the process, products and the analysis of the results.

Submission

- Team Document submission

- Individual Essay (1,000 words)
- Integrated Computational Pipeline (implemented as a Grasshopper plugin)

Assessment Methods

Document assessments are carried out independently by at least 2 Programme Staff.

Document Submission (Team): The document presents the aims of the design experiments, the logics of the processes, the Towers and associated System Territories that have been generated, and the analysis of properties and performance. Each Sequence of the generative experiment is to be presented in the document, together with the initiating and revised computational strategies made between each Sequence and the rationale for them. It will also include a full data set of the modelled Tower morphologies and their façade systems, their ranking in populations, their emergent spatial phenomena, and a reflection on the potential variations needed for placement in differing climates.

Grasshopper component submission (Team): A custom-made Grasshopper component (.gha) that performs specific computational tasks, mathematical operations, or geometric transformations that are specific to the computational system explored in the seminar course.

Document Submission (Individual): Each team member will submit a 1000-word paper (no more than 1200 words) that presents a personal critical review of the 2 sequences, alongside a detailed account of the approach undertaken and results achieved in the individual experiments conducted in sequence 1. The purpose of this submission is to ensure that each student has a comprehensive understanding of the theoretical and technical knowledge gained throughout the seminar; therefore, situating your work within the field of research is essential in displaying a clear understanding of the significance of the work presented. More importantly, a considerable part of conducting such experiments is acquiring the necessary skills to present your findings to your peers in a concise yet clear manner. This is an essential skill to be gained for publishing your work in peer reviewed journals and conferences. As such, each paper must be structured to include an Introduction, Background and Context, Methods, Experiment Setup, Results and Conclusions.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis
The work demonstrates a systematic understanding and critical awareness of the concepts of Emergence and Evolutionary Computation, of the strategies for applying different algorithmic approaches to design, and the use of analytical tools for the evaluation of outputs. Appropriate critical and/or technological precedents, contextual factors, methodologies, practices and/or tools inform the parameters of the brief, satisfying specific contextual and analytical requirements.

Process and synthesis
Research into the appropriate contextual, critical and/or technological precedents, methodologies, practices and/or tools is synthesised into the design process, allowing for creative decision-making, inventive design strategies, experimentation and originality. The work demonstrates knowledge and skills in the clear formulation of aims for computational design experiments, and an ability to plan and pursue a research agenda in Evolutionary Computation. Feedback is integrated into a self-directed design process that demonstrates criticality and independent learning skills, and the ability to work in a group where necessary, required for continuing professional and academic development.

Resolution and clarity of communication
Design proposals are resolved to a satisfactory standard based on the functional criteria and/or project themes set by the brief, with appropriate methodologies deployed in the production of appropriately ambitious propositional design work. Project work is organised, structured and communicated effectively through a range of considered representational methods and visual, verbal and written skills. The work elucidates hypothesis, research, and experimentation in an analytical manner, evidencing the ability to construct and maintain a critical position, and the skill to place this in the theoretical context of Emergence. The work is structured and organised effectively, demonstrating good use of written and visual communication skills and the independent learning ability required for continuing professional development.

TITLE	CORE MODULE 3b – DESIGN II: ECOLOGICAL URBAN DESIGN		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Milad Showkatbakhsh, Anna Font, Abhinav Chaudhary, Danae Polyviou, Paris Nikitidis, Krishna Bhat, Michael Weinstock	Term Credits	2 15
Learning Methods	Lectures Seminars Tutorials Juries Self-directed learning	Workload	150 hours study, inclusive of teaching contact: 30 hours teaching/120 hours self-directed study

Synopsis

Design II: Ecological Urban Design is focused on creating new design experiments and system logics for ecologically sensitive settlements with urban tissues in extreme climates and ecological contexts. It is founded on the logic that the patterns of human inhabitation are determined by the needs of the infrastructure of the ecology - designed, grown and developed as integrated natural and cultural systems, with the ambition to be resilient to change. Initial design experiments will be conducted to test generative algorithms for network patterns for the distribution of infrastructural networks, settlement units, and public facilities. The variations and combinations of these aggregations will be quantified for their potential capacities and performance. Various types of analyses (CFD, environmental, syntactical) will accompany the generative network algorithms to analyse and evaluate their performance, which in return will feedback into the design workflows with an iterative logic. Experiments will be set up for the design of the self-sustaining settlement. The developed Design Proposal will demonstrate the capacities for adaptation over time and extreme weather events for the proposed infrastructures with the associated architectural morphologies in their ecological context.

Aims

Each team will design a new self-sustaining settlement, as part of an ecological tissue for 1,000 people capacity, situated within the given extreme biome. The design proposals are going to explore:

- Infrastructures of land and sea that explore connectivity and communication within the site and beyond,
- An organisation of variable settlement morphologies, associated public facilities and productive territories with their own spatial, programmatic patterns and effects,
- An articulated design of the architectural proposal detailing the structural and environmental parameters, material system, and performance.

Content

- Stage 1: Design Strategy
- Stage 2: Design Experiments
- Stage 3: Design Proposal

Learning Outcomes

- B1: Have further developed their knowledge of the evolutionary computation techniques and multi – parameter analysis, and have developed skills in their use.
- B2: Have acquired knowledge and skills in ecological analytical techniques and be able to develop appropriate strategies for inhabiting and regulating ecological systems;

- B6: Have acquired skills in synthesis of collated climatic and ecological data with design ambitions, be able to integrate those skills in the strategic choice and optimisation of strategies and design development.
- C1: Have developed knowledge and skills in advanced generative computation and be able to deploy those skills.
- C5: Have developed knowledge and skills in the analysis and evaluation of morphological systems for a range of complex urban ecological conditions; and be able to deploy those skills appropriately.

Submission

- Team Document submission
- Interactive Stand Alone Application (Developed in Unity)

Assessment Methods

Document assessments are carried out independently by at least 2 Programme Staff.

Document Submission (Team): The document presents the aims of the Design Studio, the logics and processes developed and the analysis of their properties and performance in relation to goals of the design project. The relationships between the environmental context, settlement scale, and morphological models with embedded material properties will be interrogated. Computational models will be used to discover environmental, geometrical, material, and morphological interrelationships to create a hierarchical system of design. The team dossier includes a critical account of the experiments, its rationale, and context and a set of computational and analytical models. It is expected that the document clearly presents observations and critical reflection of the experiments.

Unity app submission: Unity application that effectively communicates the details and purpose of your project through data-driven processes and clever visualizations. The application should make use of custom and user-enabled animations, time-based simulations and intuitive UI to enhance the overall user experience and better convey the functionality and design of your project. Additionally, you are required to provide a comprehensive explanation of your project's methodology (using text, images, videos), including any physical or digital experimentation you conducted, as well as your design approach and the influence of a constantly changing environmental, cultural and economical context. It is imperative that your final product is not only technically sound and effectively presenting the information in a clear and concise manner, but also making it accessible and easily understandable for an uninformed user through an intuitive user interface (UI).

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis
The work demonstrates a systematic understanding and critical awareness of the concepts of Design II. Appropriate critical and/or technological precedents, contextual factors, methodologies, practices and/or tools inform the parameters of the brief, satisfying specific contextual and analytical requirements.

Process and synthesis
Research into the appropriate contextual, critical and/or technological precedents, methodologies, practices and/or tools is synthesised into the design process, allowing for creative decision-making, inventive design strategies, experimentation and originality. The work demonstrates knowledge and skills in the analysis, digital morphogenesis and evolutionary computational design processes, and the appropriate deployment of that knowledge and skills in an integrated process of design for a large urban ecological patch. The work demonstrates the ability to place the gained knowledge and skills in an appropriate ecological, climatic and cultural context. Feedback is integrated into a self-directed design process that demonstrates criticality and independent learning skills, and the ability to work in a group where necessary, required for continuing professional and academic development.

Resolution and clarity of communication
Design proposals are resolved to a satisfactory standard based on the functional criteria and/or project themes set by the brief, with appropriate methodologies deployed in the production of appropriately ambitious propositional design work. Project work is organised, structured and communicated effectively through a range of considered representational methods and visual, verbal and written skills. The work elucidates hypothesis, research, and experimentation in an analytical manner, evidencing the ability to construct and maintain a critical position, and the skill to place this in the theoretical context of Emergence. The work is structured and organised effectively, demonstrating good use of written and visual communication skills and the independent learning ability required for continuing professional development.

TITLE	CORE MODULE 4 – CRITICAL DISCOURSES		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Alvaro Velasco Perez	Term	1, 2, 3
Learning Methods	Lectures Seminars Workshops Tutorials Juries Self-directed learning	Credits	10
		Workload	100 hours study, inclusive of teaching contact: 30 hours teaching/70 hours self-directed study

Synopsis

Gathering knowledge from architecture, social and natural sciences, computation and evolutionary theories, the design method of EmTech lies at the crossroads of various disciplines, each of which has its own historical trajectories and canons - written and built. Yet, at moments these trajectories intersect, overlap and concur. Intersections of Historical Trajectories provides a space of discussion where students will critically engage with historical narratives, empowering them to situate their work within existing fields of knowledge. The aim is to enable the student understanding his or her own personal within an extended field of knowledge in which to discuss ideas with other authors.

Aims

The aim of the seminars is three-fold. First, the course will equip the students with the skills of self-reflection and critical perspective on the history of the discipline. Second, a set of research tools will be explained and put into practice that will provide the students with multiplicity of research methodologies. These different research strategies will be developed in consonance with other seminars in which research and writing are involved. Third, it provides a space for students to develop their writing and research skills that will feed into their final dissertation, making emphasis on reading and academic writing standards.

Content

- Term 1: intersecting past trajectories (emergence of the digital, the environmental crisis, ecologies, techno-utopias)
- Term 2: contemporary bifurcations (culture of research, digital craftmanship)
- Term 3: preparation of the dissertation

Learning Outcomes

- B3: Demonstration of clear structure, precise writing and presentation of work; referencing of sources, information using agreed conventions.
- B4, C1: The development of critical faculties and an understanding of the effect that certain concepts and practices have had on the architectural discipline and its built products.
- B7, C2: Capacity to apply acquired knowledge in a creative and innovative way to a general architectural historical and theoretical field.
- C5: Skills in pursuing architectural research and presenting these findings individually or as part of a group.

Submission

- Individual Essay (1,000 words)
- Team Essay (3,000 words)

Assessment Methods

Document assessments are carried out independently by at least 2 Programme Staff.

Document Submission (Individual): 1,000-word essay defining the topic of interest for the dissertation integrating the use of research tools developed during the seminars. Informal verbal feedback, not formal written assessment, will be provided.

Document Submission (Team): 3,000-word essay. The team of students will carry out research on a particular topic of their interest, connected to their dissertation. This should gather multiple historical trajectories that intersect in specific cases of study. The text will develop their own personal thread that puts in relationship that variety of cases under one argument. After submission of the essay, this research will help informing the literature review and the cases of study for the 'domain chapter' of the dissertation.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Research and knowledge acquirement
Research into the chosen area of study is independently undertaken, demonstrating a comprehensive understanding and critical awareness of the relevant social, political, historical, theoretical, economic, environmental and/or ethical contexts, concepts, ideas and/or precedents at the forefront of the discipline, being addressed through systematic enquiry.

Approach and development
The work submitted demonstrates an inventive and original approach to the consolidation and development of research, with a consistent process of synthesising acquired knowledge is evidenced in the work. The structures, methods and/or tools utilised in the production of the work demonstrate initiative, self-directed learning, the ability to work in a group where necessary, and the skills to make complex decisions. The work demonstrates the ability to work independently and in a group where necessary, integrating and synthesising contextual information and acquired knowledge through a systematic method, evidencing self-direction, originality and the ability to respond critically to the subject matter.

Argument and communication
The work demonstrates the ability to devise and sustain complex arguments, contextualised effectively in a wider field of relevant ideas with a critical position determined. Conclusions and/or reflections are well executed, with good judgement shown in the absence of complete data. Written and visual communication skills are evidenced to a high standard throughout, and the work demonstrates the abilities developed to undertake further research.

TITLE	CLIMATE AND ECOLOGICAL SYSTEMS IN DESIGN SCIENCE		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Michael Weinstock, Milad Showkatbakhsh	Term	1 and 2
Learning Methods	Lectures Seminars Tutorials Juries Self-directed learning	Credits	10
		Workload	100 hours study, inclusive of teaching contact: 20 hours teaching/80 hours self-directed study

Synopsis

Various models, methods and techniques, founded on the sciences of climate and ecology, have been developed over time to address systems and design strategies at different urban and architectural scales. These models concentrate on quantifying, examining, and analysing dynamics of energy, information and material flows of the climate and ecological systems.

The Scientific Method is an evolving set of procedures based on systematic observations and measurements, the formulation of ideas (hypotheses), and predictions from those observations that are tested by experiment, the subsequent modification of hypotheses and further experimentation until there is no distance between the hypothesis, predictions and observed results from the experiment.

Design Research is a unique class of enquiry that may include some combination from the larger set of principles of form and behaviour, integrated knowledge from the natural or cultural sciences, a specified degree of mutability such as a relational model capable of adaptation to differing circumstances or environments, testable propositions and principles of implementation, and an expository design (conceptual, physical or computationally simulated) to be used for testing and evaluation.

Aims

The aim of the course is to introduce scientific inquiry and ecological system thinking and modelling into Design Science and Design Research.

Content

There are 7 seminars in the series, all taking place in Term 1 and 2.

- Design Science and Ecological Systems – Introduction and systems overview: Hypothesis, Theory, Law, Logic, Models, Evidence (experimental/empirical), Experiments, Quantitative and Qualitative and Mixed methods, Reasoning (logic and styles of arguments) - Inductive, Deductive and Adductive, Uncertainty and Bias.
- Design Science - Origins and Methods, Theories and Models: examples including Gases, Climate and Evolution.
- Ecological Systems in Nature and Civilisation: Biomes, Habitats, scales, metrics and dynamics of change.
- Metabolism and Energy Flow in Ecological Systems in Nature and Civilisation.
- Ecological Modelling Approaches and Computational Tools.
- Anatomy of a Literary Review for a Paper, Dissertation and Thesis in the Sciences.
- Seminar discussion and critical reflection of initial outline proposals.

Learning Outcomes

- B1: Formulation of research hypotheses and primary / secondary research questions that are pertinent to design science knowledge.
- B4, C3: Ability to conduct precedent research and literature review based on data, long proofs, code or other “methods” information, and any supplementary material.
- B3: Ability to develop a structured paper that includes an abstract, introduction, methods, results, discussion, and conclusion.
- C2, C5: Ability to formulate a set of methodical critical reflections, limitations, and opportunities for further research.

Submission

- Research proposal (2,000 words)

Assessment Methods

Document assessments are carried out independently by at least 2 Programme Staff.

Document Submission (Individual): An individual 2,000-word detailed Research Proposal on a research topic selected by the student is to be submitted that explores aspects covered in the seminar course. The detailed research proposal contains domain study and literature review, method statements, and design of experiments for the submission. The document situates the work in relation to the Scientific Method and Design Research enquiries. It comprises hypotheses, predictions from hypotheses that are tested by experiment, and subsequent modification of hypotheses and further experiments until the hypothesis, predictions, and observed results from the experiment are aligned with each other.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis
The work demonstrates a systematic understanding and critical awareness of relevant contextual factors such as site conditions, social, political, historical, economic, environmental and ethical issues that influence the technical strategy developed in the project and its overall impact on the climate where necessary. A range of critical precedents, methodologies, practices and/or tools at the forefront of the discipline are investigated to inform the environmental and technical parameters of the brief.

Approach and synthesis
An integrated technical, environmental and aesthetic method is demonstrated through the application of research into precedents, contemporary technologies, materials and processes. Environmental and technical knowledge acquired and/or findings are synthesised into a self-directed and critical decision-making process, demonstrating originality in tackling problems, an informed approach toward a regenerative approach to design, independent learning and the ability to work in a group if necessary, and the skills required for continuing professional and academic development.

Resolution and communication
The work demonstrates the ability to analyse and refine technical concepts, communicating sound judgements and a critical understanding of the implications of technical design decisions at a range of scales over the lifecycle of the project. Through resolution, the project addresses the aesthetic, programmatic and functional requirements of the brief. The work is structured and organised effectively and communicated through advanced visual, verbal and written communication techniques.

TITLE	CORE STUDIO/THESIS – THE DISSERTATION		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Milad Showkatbakhsh, Anna Font, Abhinav Chaudhary, Danae Polyviou, Paris Nikitidis, Krishna Bhat, Michael Weinstock	Terms	3 and 4
		Credits	100
Learning Methods	Lectures Seminars Tutorials Juries Self-directed learning	Workload	1,000 hours study, inclusive of teaching contact: 80 hours teaching/920 hours self-directed study

Synopsis

The Dissertation is a written and illustrated account of an original inquiry in design research, pursued through a close and careful study that is structured to yield new designs, or to integrate existing designs into a new synthesis. The activity of designing constitutes a crucial mode of research specific to the architectural discipline. The enquiry takes place within the context of the design studio. Architectural designs that contribute to knowledge are those that lead to new perceptions, to new material forms and processes, to the development of new architectural and urban systems, to new constructs that advance the existing understanding and quality of the built environment.

Within the field of Emergent Technologies and Design it is expected that quantifiable scientific knowledge will provide the appropriate model of study that may be coupled to appropriate culture models.

PG MArch students produce their 15,000 – 20,000 word Dissertation for submission at the end of the 16-month programme.

Aims

The Dissertation Research Studio is focused on extending the acquisition of research competencies and their application to advanced production in architecture, urbanism, and ecological engineering. Students further develop their abilities to analyse complex issues and to engage in independent research, integrating insights gained from case studies with insights gained from Digital and material experiments. Students integrate explorations of the theoretical discourses, relevant sciences and case studies of 'state of the art' projects in the domain of their chosen topic and set out the methods and protocols for the development of their Design Proposal. The development and conclusion of the final proposal is pursued through the iterative design cycles that students have acquired knowledge and skills in during the early phases of the programme.

The form in which the Dissertation is to be presented includes text, illustration, and original unique three-dimensional designs. Design research will necessarily be supplemented and substantiated by various scientific methods of analysis and evaluation. The design will be expressed and evaluated with respect to these scientific methods, and accompanied by textual exegesis that situates, frames, and communicates the contribution to the field of architectural design.

Design research is usually situated in one of the two main fields of investigation, but it may be a hybrid that combines some aspects from the other. Students work in pairs for the Dissertation, and individually on further development of their personal Critical Reflection that completed the Studio portfolio.-The principal domains of our design research are positioned at the confluence of two major research trajectories:

- **Dynamic Material Systems with Advanced Fabrication** – focused on advanced fabrications and assembly technologies applied at the scale of medium/large buildings and/or landscapes.

- **Ecological Urban Design in Emergent Biomes** - focused on algorithmic design for energetic models of new cities and settlements and their integrated technologies at the scale of an ecologically defined landscape such as a shoreline, river valley, delta or hillside.

Learning Outcomes

- A1: Assimilation of the programme material and familiarity with concepts, techniques, and strategies in the field of Emergence.
- A2: Assimilation and familiarity with material processes and advanced manufacturing techniques.
- A3: Assimilation and familiarity with advanced digital and mathematical design techniques.
- A4: Assimilation and familiarity with advanced digital structural and environmental analysis.
- B1: Demonstration of clear and appropriate formulation of hypotheses and arguments, and the ability to deploy these for the planning and pursuit of a research agenda.
- B2: The ability to conduct comparative analysis and produce meaningful generalization.
- B3: Demonstration of clear structure, precise writing and presentation of work; referencing of sources, information using agreed conventions.
- B4: The development of critical faculties and advanced design skills.
- B5: Demonstration of judgment and appropriate application of research material and technical knowledge to design and material experiments.
- B6: Demonstration of capacity to apply acquired knowledge and techniques in a creative and innovative way to a comprehensive architectural design and to its material construction.
- B7: Demonstration of capacity to apply the acquired knowledge and techniques in a creative and innovative way to a general architectural construction type and material system, or to a developed and tested generative strategy of architectural design.
- C1: A thorough knowledge of the specific concepts, techniques and practices in the field of Emergent Technologies and their effect on the production of built architectures and artefacts.
- C2: Capacity for critical and technical analysis.
- C3: The ability to construct Case Studies by applying critical and technical analysis to historical modes of construction.
- C4: The ability to connect analysis to design philosophies and material strategies and relate them to industrial processes and production.
- C5: Skills in developing and pursuing architectural and technical research in the field of Emergent Technologies, and in presenting research findings individually and as part of a group.
- C6: The ability to contribute to interdisciplinary professional teams.

Submission

- Dissertation (team submission) (15,000 – 20,000 words), including:
  - Abstract: The original proposal, which will be revisited several times as the work progresses.
  - Introduction: Written last.
  - Map of Individual Contributions to the Dissertation and short commentary.
  - Chapter 1 - The Domain: the topic or area to be investigated, including precedents and the physics of the topic. This concludes with the precise design problem or question that is to be tested and developed. This must be a sharply defined question - not a general discussion, for example, on metabolism or network topology. Precision requires definitive statements of the parameters that control or limit the work, its contribution to the field and the means by which it will be measured.
  - Chapter 2 - Methods: the methods and techniques that are the current state of the art in the profession and in research, the digital and physical techniques you intend to use in your investigation, their relation to the 'state of the art', and how you have tested their effectiveness and calibrated them.
  - Chapter 3 - Research Development: the first experiments, digital and physical, and their evaluation, and how they give an insight to the concluding statements of the Domain Chapter - and have contributed to the refinement of the research question.
  - Chapter 4 - Design Development: more complex design experiments at higher systems level.
  - Chapter 5 - The Design Proposal: the final proposal in all its detail.
  - Chapter 6 - Evaluations and Revisions/Future Development.
  - Critical Reflection (individual).

Assessment Methods

Document Submission (Team): The final MArch Dissertation will be submitted by the end of the fourth term. All submissions are assessed and marked by two members of the programme's teaching staff.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context, analysis and knowledge acquirement

- The work demonstrates a systematic understanding and critical awareness of relevant contextual factors such as site conditions, social, political, historical, economic, environmental and ethical issues. Analysis is undertaken in relation to the needs of the intended user groups and the complexities of the location. Appropriate conceptual, critical and/or technological precedents, methodologies, practices and/or tools inform the parameters of the brief, satisfying specific contextual and analytical requirements.
- The work analyses and reflects upon developments and insights at the forefront of the profession of architecture. Relevant contextual information and/or precedents are critically evaluated in order to inform the parameters of an appropriately clear and complete representation of the subject matter.

Process, approach, integration and synthesis

- Research into appropriate contextual, conceptual, critical and/or technological precedents, methodologies, practices and/or tools is synthesised into the design process, allowing for creative decision-making, inventive design strategies, experimentation and originality, explored from both user and designer perspectives. The work demonstrates clear and appropriate formulations of hypotheses and arguments, and the ability to deploy these in the planning and pursuit of an original and creative research agenda in the field of Emergent Technologies.
- Feedback is integrated into a self-directed design process that demonstrates criticality and independent learning skills, and the ability to work in a group where necessary, required for continuing professional and academic development.
- An integrated technical, environmental and contextual method is demonstrated through the application of research into precedents, contemporary technologies, materials and processes. Environmental and technical knowledge acquired and/or findings are synthesised into a self-directed and critical decision-making process, demonstrating originality in tackling problems, an informed approach toward a regenerative approach to design, independent learning and the ability to work in a group if necessary, and the skills required for continuing professional and academic development.
- The work demonstrates the ability to work independently and in a group where necessary, integrating and synthesising contextual information and acquired knowledge through a systematic method, evidencing self-direction, originality and the ability to respond critically to the subject matter.

Resolution and clarity of communication

- Design proposals are resolved to a satisfactory standard based on the functional criteria and/or project themes set by the brief, with appropriate methodologies deployed in the production of appropriately ambitious propositional design work. Project work is organised, structured and communicated effectively through a range of considered representational methods and visual, verbal and written skills. The PG MArch Dissertation is required to demonstrate the capacity to apply the acquired knowledge and techniques in a creative and innovative way to a set of architectural or urban forms that are developed within an ecological system, to a resolution sufficient to evaluate and refine the system level processes and performances central to the research questions.
- The work demonstrates the ability to analyse and refine technical concepts, communicating sound judgements and a critical understanding of the implications of technical design decisions at a range of scales over the lifecycle of the project. Through resolution, the project addresses the contextual, environmental, programmatic and functional requirements of the brief. The work is structured and organised effectively and communicated through advanced visual, verbal and written techniques.
- The work elucidates hypothesis, research, and experimentation in an analytical manner, evidencing the ability to construct and maintain a critical position, and the skill to place this in the theoretical context of Emergence. The work is structured and organised effectively, demonstrating good use of written and visual communication skills and the independent learning ability required for continuing professional development.

TITLE	DESIGN AND BUILD		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Milad Showkatbakhsh, Anna Font, Abhinav Chaudhary, Danae Polyviou, Paris Nikitidis, Krishna Bhat, Michael Weinstock	Term	2, 3, 4
		Credits	0 (Supporting programme content)
Learning Methods	Lectures Seminars Tutorials Juries Self-directed learning		

Synopsis

Design & Build is our 'extracurricular' collaborative student project, and is an essential part of the pedagogy and culture of EmTech. It runs right through the year, alongside both Studio and the Dissertation, and provides opportunities to design and deliver a built project with real material, structural, fabrication and assembly constraints. The experience gained enhances the design, computational and analytical skills students have acquired in Studio, and it develops crucial transferrable skills that are applicable to professional practice. Our Design & Build projects have been published internationally in the architectural press since 2001, and have received industry awards.

Aims

Building on the programme's knowledge and research of composite material systems, each year Emtech cohort takes part in the design, detailing and construction of a performative structure or pavilion. The first stage comprises of several groups of students organising and entering into an intense design competition for a proposal to be designed, fabricated and built as a composite structure, employing a single material system or integrating multiple material systems. The material system should be designed and fabricated using a combination of digital and robotic fabrication strategies. The winning design is developed throughout Terms 2 and 3, including comprehensive drawings, construction detailing, and assembly sequences. Each year the final one-to-one scale prototype is installed at the AA Projects Review and/or elsewhere.

Content

- Stage 1: Design Competition among teams
- Stage 2: Formation of new teams, and research development in:
  - Computational experimentation
  - Material experimentation
  - Assembly planning
  - Construction detailing
  - Material and cost planning
- Stage 3: Assembly of prototype

Learning Outcomes

- A1: Understanding advanced algorithmic thinking and iterative design processes.
- A3: Interrogation of material systems through physical material experiments and then transforming the outputs of these experiments into computational models as a form of recalibration between physical and digital experiments.
- A4: Analysing and evaluating local, regional, and global scale experiments through multiple performance-based criteria, including but not limited to Finite Element Analysis (FEA), Computational Fluid Dynamics (CFD), and various environmental analyses.

- B6: Developing knowledge and skills in advanced generative computation and be able to deploy those skills.
- B7: Building associative logics between distinct computational models across global, regional, and local component scales, and formulating hierarchies between form, orientation and geometry in order to address multiple design parameters.
- C1: Having the ability to build computational models that focus primarily on material behaviour, fabrication techniques, fabrication tolerances, and assembly processes.
- B3, C5: Having the ability to measure, photograph, diagram and document the successes and limitations of the research agenda through written and graphic methods.

Submission

- N/A

SECTION 6:

PG MArch IN HOUSING AND URBANISM

6.1 PROGRAMME INTRODUCTION

Housing and Urbanism focuses on the key issues driving urban transformation and the role of architecture in promoting and supporting critical change. We emphasize the lived city and the central role of residential life in the intensity and dynamism of the urban process. We treat housing as the cornerstone of an emerging urban vitality and its design as central to the modification of wider, complex urban systems. Design learning and investigation form the core of our programme, but a complementary aim is to deepen students' grasp of the politics of the city. In all our work, we integrate the study of form and process.

We work across scales, from detailed plans of contemporary housing to the mobility infrastructure of the regional metropolis. While many courses in urbanism grasp the broad overview of cities and regions, Housing and Urbanism investigates the way specific design reasoning enables actors and decision-makers to take essential next steps in generating change. The capacity for critical synthesis drives all our work and enables students to understand their project as the coalescence of a range of urban forces and trends. Offered as a 16-month taught-degree programme, the MArch in Housing and Urbanism curriculum centres on design-led research leading to an individual thesis based on a comprehensive design project. A collaborative Design Workshop forms the central element of the coursework and the student experience during the first three terms, with lectures and seminars informing students' design work and broadening their scholarly understanding of urban trends and histories. The final term is devoted entirely to students' individual design thesis development and completion.

Each year, we focus on a set of specific research themes which organise our workshops and international collaborations, while always maintaining our commitment to the interrelationship between urban projects and civic action. We investigate the foundations of urban resilience and complexity, and research how design supports multi-sectoral decision making involving both government and private actors. In this era of global uncertainty generated by conflict and climate change, we emphasize the potential of innovation in our lived environments to support and strengthen democratic practice. We examine the hopes for leadership, responsibility, and innovation that may emerge from the current situation, and the role that architects and urbanists may play in encouraging a high level of ambition among our political actors and civic leaders.

Housing and Urbanism holds to a comparative and international tradition. While London as an outstanding global city forms our primary research laboratory, we undertake an annual European study trip to investigate leading-edge projects elsewhere, such as Berlin, Paris, Copenhagen, or Vienna. In addition, Housing and Urbanism collaborates each year with a host city and university in an intensive workshop addressing a specific live challenge under conditions of complexity and rapid change. Our partner cities have included Warsaw, Bogotá, Recife, Taipei, Hanoi, Shanghai, Rio de Janeiro, and Mexico City. This past year, we worked with the city of Brno, Czechia, and will continue this collaboration, while also initiating new partnerships in South America. Housing and Urbanism students become part of this vibrant network of international urban learning.

6.2 AIMS

The Housing and Urbanism Programme seeks innovative urban strategies through the integration of architecture, politics, and research into the contemporary urban process. Students are taught to think and design across scales, from the dwelling to the metropolitan region, and to value associational practice and civic action in their approach to urban projects. We demonstrate how architectural tools and concepts offer lines of investigation and development to students interested in effective urban transformation. Our approach derives from an experimental pragmatism, well grounded in a solid understanding of contemporary trends and urban realities. Students' thesis projects should demonstrate a balanced concern for critical reflection,

innovation, and viability, and present a synthetic understanding of urban issues through the application of architectural and urban reasoning.

6.3 LEARNING OUTCOMES

INTENDED LEARNING OUTCOMES: PG MArch in Housing and Urbanism; FHEQ LEVEL 7	
Learning Outcomes 'LO'	Aligned to the Framework for Higher Education Qualifications (FHEQ) and QAA Subject Benchmark (Architecture), on successful completion of the PG MArch in Housing and Urbanism students will be able to:
A	**Knowledge and Understanding**
A1	Demonstrate a good grasp of the theories and concepts which help understanding the interplay of social/political and spatial processes in the city.
A2	Demonstrate critical and analytical capacity in the use of those conceptual tools.
A3	Demonstrate good knowledge of historical precedents.
A4	Demonstrate good knowledge of the history of ideas in the fields of urbanism and housing.
A5	Demonstrate good knowledge of tools and methods of spatial analysis and intervention.
A6	Apply their analytical capacity to a real context and situation.
B	**Subject Specific Skills and Attributes**
B1	Represent graphically their understanding of a given situation.
B2	Connect their analysis to concrete design strategies and proposals.
B3	Identify and use tools of spatial design and intervention appropriate to a given situation.
B4	Contribute to professional teams working on urban and housing projects.
B5	Develop and test by and through design a central thesis.
C	**Transferable Skills and Attributes**
C1	Use their analytical capacity in other areas of urban development studies.
C2	Engage in urban research as a member of an interdisciplinary team.
C3	Contribute, as part of an interdisciplinary team, to the formulation of urban development strategy.

6.4 ASSESSMENT CRITERIA

All learning outcomes must be met in order to achieve a pass overall. The assessment of submitted work is based on the following overall assessment, in addition to specific ones given for each module. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- An awareness of the historical and theoretical context of the issue(s) addressed.
- A sound critical and analytical grasp of the main concepts employed or discussed.
- An ability to understand urban spatial conditions and processes and/or analyse and employ exemplary urban projects in the development of an argument.
- Referencing of sources of information using agreed conventions.

- Ability for comparative analysis and meaningful generalisation.

Approach and development

- A capacity to develop a clear point of view and consistent line of argument both through written work and design.
- A capacity to apply knowledge gained in the Course to the development of the written and design work.
- Effective and appropriate use of visual material to develop the thesis argument.
- Use of critical faculties which will allow graduates to continue expanding their knowledge in the field.
- Good judgement and a responsible attitude toward the application of this knowledge.
- Capability to apply the newly acquired knowledge in architectural and design practices and research.

Resolution and communication

- Innovative thinking and creativity.
- Clear structure, writing and presentation of course work.
- An ability to develop a comprehensive design response to a particular urban challenge.

6.5 CREDIT FRAMEWORK

Term	Course Title	Credits
1, 2, 3	**Core Module 1 – Design Workshop Group** Including: Critical Urbanism Sustainable Urbanism	20
1, 2, 3	**Core Module 2 – Design Workshop Individual** Including: Critical Urbanism Sustainable Urbanism	20
1	**Core Module 3 – Elective: Submit 2 of 3 Electives** Housing Form Transnational Cities I Urbanity and Democracy	20 (10 credits per elective)
2	**Core Module 4 – Elective: Submit 2 of 3 Electives** Domesticity Transnational Cities II Urban Form	20 (10 credits per elective)
3, 4	**Thesis**	90
3	**Thesis Brief**	10

6.6 TEACHING AND LEARNING METHODS

The MArch Course is structured around three primary types of teaching and learning activities: design workshops; lectures and seminars; and the Design Thesis. The design workshops offer an opportunity to explore and apply architecture to questions of urban change, to develop arguments and debate approaches through project design, and to develop graphic and presentational skills. Here, students learn the interrelationships among proposition, investigation, debate, and synthesis that bring architecture and design onto the terrain of research in urbanism. The lectures and seminars allow students to broaden and deepen their understanding of architectural thought, the politics of urban change, and to develop a critical capacity to integrate these types of knowledge. In each of these activities the programme takes a prospective and internationally comparative view, helping students develop an informed but experimental attitude toward the pursuit of specific projects which may initiate or nurture positive urban transformation. This attitude is carried over into the dissertation work, during which the student develops a critically synthetic project demonstrating effective next steps within the contemporary urban process.
Group work within the course – especially in the Design Workshop – is modelled upon architectural practice, where collaboration, shared purpose, review, debate and common decision-making are given priority. Students work in small subsets of two or three students within a larger team to develop complex design

responses to specific urban briefs. This exposes students to the challenge of collaboration and the opportunity to hone skills in listening, presentation, communication, and persuasion. One output of the Design Workshop takes the form of a group document and is assessed as a common piece of work. A second output is an individual piece of work deepening and developing each student's distinctive perspective. Both pieces of work build students' capacity to critically synthesise materials from the lecture series in Critical Urbanism and Sustainable Urbanism and apply these to their design work. The Design Workshop Individual Assignment, essays for the elective lecture courses, and the thesis all emphasize individual work, along with the depth of research and personal ownership over the topic that this implies.

While the Design Workshop emphasises the architectural foundations of urban strategy, the elective lecture and seminar courses are organized around three additional core themes: the political foundations of the urban process; the investigation of critical difference in urban form, and especially, the role of housing innovation in democratic city-building. These themes are approached from different vantage points in each of the elective courses, and students are required to submit essays for two of the three electives in each of the first two terms. This enables students to develop the breadth and depth of their studies.

In each of the three teaching and learning activities, there is a structured balance between individual and group activities. The primary emphasis of the programme is on the development of each individual student's interests and capacities, and the preponderance of assessed work is individually pursued. However, the programme also aims to cultivate students' capacity for teamwork, shared investigation, and informed debate through team-based design review sessions and seminars.

London provides an outstanding laboratory of urban transformation, and the exploration of the city and its processes are fully integrated into Housing and Urbanism teaching in the main Design Workshop, through lectures and group seminar work, and through guided investigation tailored to individual student research interests. However, London is not just a place, but a network of active professionals and decision-makers, and Housing and Urbanism students are brought into contact with the field of London's change-makers to better understand the practical and political framework of urban transformation. Equally, however, lectures are structured to highlight an international and comparative perspective and to promote knowledge sharing and innovation transnationally. Our study trips and workshop abroad extend and deepen this learning strategy.

Learning Support

Housing and Urbanism is strongly oriented toward a culture of active engagement between students and staff in all areas of teaching and learning. Scheduled activities, such as lectures, seminars, and the Design Workshop, make up a substantial portion of each week during term-time, which means there is a high level of contact hours with faculty as a baseline. In addition, there are opportunities for individual tutorial every week with both design tutors and lecturers. Students are encouraged to seek tutorials with faculty both for their design work and for essay writing, and we also have a dedicated staff member to support the development of students' writing skills. During Phase II, the Design Thesis period of the course, each student will have at least two dedicated faculty for regular design review and tutorials.
Housing and Urbanism faculty are engaged in real-world urban projects and/or urban policy development, and a core area of our culture as a programme is to bring a feel for the pragmatics of contemporary urban and architectural practice to the lecture hall and studio. At the same time, Housing and Urbanism is also a home for conceptual experimentation and development, debate, and innovation, and the fundamental reason for our high degree of contact time with students is to bring out the richness of this encounter. We maintain a studio with this culture of engagement in mind, to support both individual design work and writing, on the one hand, and group activities, such as teamwork and discussion sessions, on the other.
Our annual European study trip and Intensive Workshop Abroad are both accompanied by a full complement of Housing and Urbanism faculty, such that these extended activities become opportunities for a sustained learning experience. In addition, during these trips we integrate local practitioners, academics, and decision-makers into our discussions, so that students gain an understanding of different international perspectives on urban development and strategy, along with the projects which support and manifest them.
In addition to the core areas of teaching and learning inside the programme, Housing and Urbanism students have access to Media Studies courses from the wider AA School, and a broad range of lunchtime and evening lectures, symposia and conferences. There is also a full complement of further support facilities, such as workshops, 3-D printing facilities, and a library with extensive holdings.

6.7 COURSES

TITLE	CORE MODULES 1 & 2 – DESIGN WORKSHOP ON HOUSING AND THE CITY		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Lawrence Barth, Jorge Fiori, Florian Dirschedl, Anderson Inge, Dominic Papa, Elena Pascolo, Anna Shapiro, Steve Sinclair	Terms	1, 2, 3
		Credits	40 • 20 Group • 20 Individual
Learning Methods	Group and Individual Design Tutorials Lectures Design Reviews	Workload	400 hours study, inclusive of teaching contact: 180 hours teaching/220 hours self-directed study

Synopsis

The Design Workshop forms the core of the Housing and Urbanism curriculum, teaching students to investigate, explore, and respond to the urban process through design reasoning. Working in teams with close participation of staff, students are introduced to a specific but complex set of challenges faced in cities today, through which they learn to understand, envision, and initiate urban transformation through a project. We emphasise argument through design, building a capacity for comparison and evaluation. The course develops research, drawing, and writing skills while encouraging collaboration, discussion, and invention.

Urbanism is necessarily forward-looking, demanding creativity and critical innovation as cities adapt themselves to contemporary forces of change. At the same time, the field depends both upon a solid knowledge of cities – their organization, processes, and material development – and upon a thorough understanding of architecture: its methods, concepts, and tools. In fact, the two forms of knowledge are closely interrelated, and architecture provides one of the most important means for knowing the city, as well as for working on it. This forms the background for the Design Workshop. Here, we build the skill set for students to both critically understand the city – in a way that is legible, communicable, and actionable – and to prospectively transform it.

Aims

The Design Workshop aims to enable students to treat design as a research tool in the formulation of urban strategies and projects. Students are taught how to investigate, compare, and evaluate exemplary projects and use graphic means to reveal and explain their findings. In addition, they learn to use architectural concepts and graphic strategies to investigate a prospective and transformative approach to the contemporary urban process, for example, through novel urban development models, broader assembly of stakeholders, or new associative practices. In the Design Workshop, students are expected to locate and integrate an understanding of current urban politics and practices within their development of architecturally informed propositions.

Content

Students are divided into tutorial groups for weekly meetings, and these continue through Terms 1, 2 and 3. The group workshop will ensure that each student learns how to develop specific content to their individual research interests and trajectory, but this will involve:

- Progression in Term 1 from exploration and evaluation of exemplary projects, both historical and current, toward increasingly complex expression of prospective architectural and urban visions in Terms 2 and 3.
- Course includes a weekly lecture series, Critical Urbanism, establishing the conceptual and theoretical foundations through which architecture brings a capacity for critical synthesis to the urban process.
- Course also includes a second lecture series, Sustainable Urbanism, establishing emerging urban practices, frameworks and strategies for addressing the contemporary climate crisis.
- Development of a shared graphic vocabulary within the studio, together with appropriate use of various projections and media.
- Development of students' facility for investigating and incorporating political debate and argument into the expression of a strategy and vision.
- Opportunity to explore and apply architectural and urban concepts acquired in lectures to urban challenges encountered in our London or international laboratories.

Learning Outcomes

By the end of the Design Workshop students should be able to:

- Understand the fundamental and constitutive relationship between architecture and urban transformation.
- Make effective use of the conventions of architectural thought to explore and develop urban propositions.
- Have command of graphic tools of investigation, exploration, and analysis in relation to exemplary urban projects.
- Be proficient in the use of graphic tools to demonstrate generative and developmental aspects of architectural thought for urban change.
- Integrate textual and graphic arguments and propositions convincingly in presentations and documents.
- Research effectively and evaluate the relationship between drivers of change and specific urban projects.
- Develop the capacity for informed and critical appraisal of current urban projects in specific thematic areas of urban development.
- Propose innovative and critically informed approaches to housing design.
- Show awareness of emerging responses to climate crisis and incorporate lessons into urban proposals.
- Show skill in the development and presentation of group work.

Submission

- Group document
- Individual assignment (4,500 words)

Assessment Methods

Students will present a group document in Term 3 covering the work of the previous terms. This will demonstrate both research into the politics of urban transformation and the pragmatics of the proposed projects. In addition, students will submit an individual assignment covering the work of the previous terms. The individual assignment allows the student to go into depth in an area of particular interest for his or her research, analysis, or design development, and to demonstrate his or her understanding of the issues, challenges, approaches, and methods related to a particular area of urbanism.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Substantial evidence of research to support the argument, well-chosen and germane to the topic.
- A distinctive grasp of the core ideas of the discipline, such that they show originality in the group or individual work.

Approach and development

- Clarity and consistency of the argument for urban transformation and the validity of the projects proposed to achieve it.
- Depth and breadth of critical awareness supporting the argument.

Resolution and communication

- Well organised and written presentation of materials.
- Excellent development of graphic material to demonstrate exploration, analysis, and evolution of the design investigation and final project.
- A strong ability to communicate persuasively through graphic material, including its integration into the textual argument.

TITLE	CORE MODULE 3a – ELECTIVE: TRANSNATIONAL CITIES I: THE SPATIALITY OF DEVELOPMENT		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Jorge Fiori, Elena Pascolo	Terms	1
Learning Methods	Lectures Tutorials	Credits	10
		Workload	100 hours study, inclusive of teaching contact: 15 hours teaching/85 hours self-directed study

Synopsis

Globalization is a subject that permeates most debates about cities today. While its exact meaning and implications remain a matter of great controversy, it is undeniable that substantial qualitative changes are taking place in the world economy, with major spatial and social implications. Cities are at the core of this process. Their nature, role and potential development are being continuously redefined, together with the meaning, instruments and role of urban policy and planning. This course attempts to explore from a theoretical and historical perspective the processes of urban transformation in the context of internationalization of the world economy, paying particular attention to the reflection of that in terms of changing systems of urban governance. This course uses the growing informalisation of cities and of the world economy as an entry point to reflect on the changing nature of cities and the challenges for urban policy and planning.

Aims

This course aims at examining the relationship between the spatial transformation of cities and their socio-economic context, in the light of current debates on development and globalization. Drawing from the realities of developing countries as its starting point, it offers a critical and comparative analysis of the changing nature of cities and housing in the context of globalization, economic adjustment and political restructuring. It will explore the implications of different strategies of development - in particular in the post-war period - in terms of the social and spatial transformations of cities and of the change in the systems of urban governance, placing strong emphasis on issues of policy and planning.

Content

Some of the topics covered by this course are:

- The place of cities in development theory;
- Globalization: theories, ideologies and practice;
- Cities in a globalising world;
- Internationalisation and ‘informalisation’ in the world economy;
- Urban poverty revisited;
- Urban governance and planning;
- The de-spatialisation of planning;
- Strategic Planning and its contradictions;
- Urban planning and multiscalarity.
- Informality: conceptual and political challenges;

Learning Outcomes

At the end of the course students will be expected to have:

- An understanding of the relation between development processes and the social/spatial transformation of cities;
- A critical understanding of the different interpretations and perspectives on the place of cities in the process of globalization;
- An understanding of the dilemmas posed by globalization and market liberalisation policies to the governance of cities and to urban development policy and planning.

Submission

- Essay (2,500 words)

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Show critical awareness in the use of theoretical work and case examples.
- Demonstrate understanding of the selected and relevant readings for the essay.

Approach and development

- Show an ability to structure a coherent argument.

Resolution and communication

- Show evidence of independent work, properly referenced.

TITLE	CORE MODULE 3b – ELECTIVE: HOUSING FORM		
Level	FHEQ Level 7	Status	Elective
Teaching Staff	Irénée Scalbert	Terms	1
Learning Methods	Lectures Seminars Tutorials	Credits	10
		Workload	100 hours study, inclusive of teaching contact: 15 hours teaching/85 hours self-directed study

Synopsis

The last three decades have seen a renewed interest in architect-designed mass housing. While the exterior has dominated architectural focus, the interior of dwellings has, by and large, been relatively neglected. Housing is not constituted as an envelope merely to receive typical unit plans. Form and experience cannot be conveniently dissociated. To the contrary, the most committed architects conceive of housing form from the inside out as the source and guarantor of meaningful experience. This course will review in detail the best housing projects built in the last 100 years and ask, what constitutes excellence in the field.

Aims

The aim is to open discussion as to what constitutes excellence in the field of housing. The lecture and seminar course will assist students in becoming conversant in the history of housing design and to develop their own terms of reference including specific housing projects, design priorities and values. The course will demonstrate the detailed observation and the depth of understanding that are necessary to integrate a work of design in one's personal canon. It will further demonstrate that models, rather than being confined to the latest examples, can be found throughout history. The course is intended to be of immediate relevance to the work carried out in the Design Workshop.

Content

The course will be structured in 9 lectures, each being dedicated to a particular example and a particular moment in housing design. Each lecture will be profusely illustrated with both archival and contemporary images and documents. The approach will be descriptive and critical. Lectures will be followed with a discussion concerning the value and limitations of the project, in itself and in the light of the present time. Contents will include:

- the presentation of a wide range of documents and sources
- the demonstration of empirical research on specific buildings
- the coverage of seminal and occasionally little-known projects
- the readings of historical texts by architects and critics
- the articulation of design with contemporary theoretical and political concerns

Learning Outcomes

At the end of the course, students will be able to:

- Make a detailed and comprehensive analysis of a housing project
- Support this analysis with the best available sources
- Situate the project within the context when it was made

- Assess the value and limitations of a project
- Express a coherent view about its potential as a housing model

Submission

- Essay (2,500 words)

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Show competence in the observation and the research on a work of housing.
- Show an awareness of the main issues prevailing at the time of its conception.

Approach and development

- Demonstrate independence of thought in making a judgment on the quality of a project.
- Articulate a point of view relating to the relevance of a project to the present time.

Resolution and communication

- Be supported with relevant documents including drawings and photographs.

TITLE	CORE MODULE 3c – ELECTIVE: URBANITY AND DEMOCRACY		
Level	FHEQ Level 7	Status	Elective
Teaching Staff	Lawrence Barth	Term	1
Learning Methods	Lectures Tutorials	Credits	10
		Workload	100 hours study, inclusive of teaching contact: 15 hours teaching/85 hours self-directed study

Synopsis

Urbanism arose as a specific field of problems within the government of Western liberal societies, and the life of cities forms a central condition for the realization of democracy. In this course, we introduce students to this deeper political history which continues to play out in arguments about urban change. The lectures and readings are structured to enable architects to gain a capacity for fundamental understanding of politics and democracy, so that we have a richer grasp of the complexity of today's urban issues. A key feature of urbanism, in addition to its distinctive genealogy in Western governance, is its projective attitude. It looks toward a future that is meant to mark out a progressive response to present promises and past failings, but it does so under conditions of dispute and conflict. This entails urbanism having a politics: a point of view about the human world it proposes to alter. In this sense, the ends toward which urbanism strives are always greater than the immediate project. We take an associationalist and pragmatic point of view in reflecting on these core aspects of urban reason, with the hope of gaining a certain maturity in our handling of the key political challenges of urban transformation.

Aims

This lecture series aims to deepen students' critical awareness of connections between urbanism and political thought and promote their familiarity with the politics of cities and urban design. The course draws connections for students between urban projects – both current and historical – and key political issues of their era. At the same time, we highlight how these political issues came to be framed and recognised by the emergence of a specific understanding of urban environments subject to transformation through civic action. This enables students to become more aware of the interconnected legacies of political and urban visions.

Content

Readings are drawn from both urbanism and politics, and while material for each of the topics ranges over the last two centuries, all will be oriented toward an analysis of aspects of current thought and practice in urbanism:

- The Urban, the Present, and the Political
- Understanding Categories: Public, Private, Social, and Civic
- Association
- Power
- Freedom
- Violence
- Difference
- Critique
- The Rise of Contemporary Biopolitics

Learning Outcomes

At the end of this course, students should be able to:

- Be aware of key events in the constitution and transformation of the urban as a problem-field in Western governmental reason.
- Extract from key theorists, such as Foucault and Arendt, elements of their writings which will help define an approach to the understanding of urbanism and its political reason.
- Relate the work of key urban theorists, such as Simmel, Weber, Wirth, Sennett and others, to the urban field their writings have helped to define.
- Recognize the genealogical relationship between major themes within urbanism and trajectories of Western political reason.
- Discuss and critically evaluate the use of key political terms underpinning urbanism, such as community, difference, power, justice, autonomy, and others.

Submission

- Essay (2,500 words)

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Demonstrate familiarity with the writings of key theorists, such as Weber, Durkheim, Foucault, Arendt, or others, and show how their work may be applied to the study of the urban.
- Indicate awareness of relevant events and transformations within the reason of urbanism.

Approach and development

- Demonstrate understanding of the relationship between urban and political thought, on the one hand, and the practice of urbanism, on the other.

Resolution and communication

- Exemplify a reflexive and critical response to the terms through which we are positioned to discuss the current urban condition.

TITLE	CORE MODULE 4a – ELECTIVE: DOMESTICITY		
Level	FHEQ Level 7	Status	Elective
Teaching Staff	Lawrence Barth	Term	2
Learning Methods	Lectures Tutorials	Credits	10
		Workload	100 hours study, inclusive of teaching contact: 15 hours teaching/85 hours self-directed study

Synopsis

The topic of domesticity has enjoyed renewed attention in recent years, reflecting current enthusiasm for housing innovation and a growing commentary on changing cultures of urban living. This pattern of critical reaction mirrors early 20th-Century calls for housing research and reform. This emphasis upon both diversification and transformation of the home can be studied as part of a broader technology of the subject, where the family and the social complex in which it resides are scenes of dispute and tension. However, we also look at the question of new approaches to household design from the perspective of architects and urbanists, asking how housing is evolving through new patterns of service delivery, shared facilities and resources, and the growth of collective and recombinant households. In this course, we pull these two perspectives together. Multiresidential housing becomes fertile ground for architectural and urban innovation, as well as an opportunity to reflect critically on contemporary subjectivity.

Aims

The aim of this lecture and seminar course is to enable students to explore and assess the current condition of urban domesticity and multiresidential housing design. Balanced between attention to historical and conceptual literature, on the one hand, and exploration of contemporary housing design, on the other, this course offers preparation for students wishing to deepen their understanding of the history, politics, and inner tensions in housing design for their thesis or project work.

Content

The course is structured into a series of conceptual, historical, and design-oriented lectures, followed by opportunities for student presentation of investigatory themes and findings.

- Diversity and change in the architecture of dwelling.
- Conceptual and historical foundations to the study of households.
- Changing approaches to the typological foundations of multiresidential housing.
- Contemporary trends, drivers of change, and emerging approaches to multiresidential housing.
- Housing and intensive urbanity.

Learning Outcomes

At the end of this course, students should be able to:

- Understand the genealogical relationship between social reform and domestic life.
- Extract from key writers, such as Foucault, Donzelot, and Nikolas Rose, an approach to the understanding of domesticity.
- Critically reflect on transformations in domestic architecture.
- Understand the relation between housing design and the politics of social and personal space.

- Use design and graphic material to develop and pursue researchable questions in urban housing strategies.

Submission

- Essay (2,500 words)

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Demonstrate engagement with the intersection between the architecture of dwelling and the transformations of domesticity.
- Show evidence of an attentiveness to the genealogy of domestic space.

Approach and development

- Integrate or outline a theoretical position for the investigation of change in domestic environments.
- Demonstrate a critical awareness of the contemporary condition of domesticity within the urban.

Resolution and communication

- Employ design and graphic material effectively to clarify and pursue research in contemporary urban housing.

TITLE	CORE MODULE 4b – ELECTIVE: TRANSNATIONAL CITIES II: HOUSING AS URBANISM		
Level	FHEQ Level 7	Status	Elective
Teaching Staff	Jorge Fiori, Elena Pascolo	Term	2
Learning Methods	Lectures Tutorials	Credits	10
		Workload	100 hours study, inclusive of teaching contact: 15 hours teaching/85 hours self-directed study

Synopsis

This course critically analyses the evolution of housing policies since the mid twentieth century in the wider context of economic and political transformations at the world scale. It pays particular attention to the phenomenon of urban and spatial informality as constitutive of the urban condition everywhere – from the slums of the impoverished cities of the developing world to their more 'camouflaged' existence in the cities of the developed world. It reviews critically the growing 'despatialisation' of strategies to deal with urban and housing informality and explores the role that housing architecture and urbanism can play not only in addressing those conditions but also in the redesigning of the city as a political construct. Informality places a radical challenge to the traditions of housing and urbanism and engaging with it involves a rethinking of the spatial disciplines themselves – their methodologies, tools and instruments of design – in ways that can be relevant to the rethinking of the articulation of spatial practices and the politics of urbanism in contexts far beyond informality.

Aims

The course mobilises the understanding of informality to explore different possible readings of the relationships between housing and urbanism. It enables students to better articulate the connections between spatial strategies and urban politics and to address social need in housing across multiple scales of urban development. After an initial review of the contextual and historical circumstances of the evolution of housing theories and policies, this module will explore the social-spatial challenges of a multi-sectoral, multi-dimensional and multi-scalar approach to the implementation of housing strategies and policies as drivers of urbanism.

Content

- The social and historical context of the evolution of housing policies in the developing world;
- Informality: conceptual and political challenges;
- Changing role of stakeholders in housing strategies;
- Changing understanding of scale and scaling up;
- Housing as urbanism;
- Space and politics in housing;
- Changing nature of the housing project;
- Architectural urbanism and multiscalarity.

Learning Outcomes

At the end of the course students will be expected to have:

- A critical understanding of the changing approaches to housing and the informal city and of their contextual and historical determinations;
- An understanding of the growing articulation of housing and urban development strategies;
- An understanding of the place of housing and urbanism in urban social policy;
- An understanding of methodologies and tools of spatial design to address informal housing and the informal city.

Submission

- Essay (2,500 words)

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Show critical awareness in the use of theoretical work and case examples.
- Demonstrate understanding of the selected and relevant readings for the essay.

Approach and development

- Show an ability to structure a coherent argument.

Resolution and communication

- Show evidence of independent work, properly referenced.

TITLE	CORE MODULE 4c – ELECTIVE: URBAN FORM		
Level	FHEQ Level 7	Status	Elective
Teaching Staff	Irénée Scalbert	Term	2
Learning Methods	Lectures Tutorials	Credits	10
		Workload	100 hours study, inclusive of teaching contact: 15 hours teaching/85 hours self-directed study

Synopsis

In the decades following WWII, a number of important modern architects came to reflect critically on the nature of the city and began to reconceive its form and organization through specific projects. In this course, we will look at a series of exemplary projects which consist of more than a single building and establish a fresh approach to the conception of urban form. These projects will be explored across scales, from their interiors to the reconfigured spaces between buildings, and on to their implications for wider urban transformation. This attitude regarding the disposition of buildings in an ensemble continues to the present day, and we will explore the legacy of these early projects in contemporary, project-driven urbanism. The course will place an emphasis upon detailed architectural criticism.

Aims

The aim is to open discussion as to what constitutes excellence in the pursuit of urban form. The lecture and seminar course will assist students in becoming conversant in the history of what we might call the critical urban ensemble. The course will demonstrate the detailed observation and the depth of understanding that are necessary to integrate a work of design in one's personal canon. It will further demonstrate that models, rather than being confined to the latest examples, can be found throughout history. The course is intended to be of immediate relevance to the work carried out in the Design Workshop.

Content

The course will be structured in 9 lectures, each being dedicated to a particular example and a particular moment in the conception of urban form. Each lecture will be profusely illustrated with both archival and contemporary images and documents. The approach will be descriptive and critical. Lectures will be followed with a discussion concerning the value and limitations of the project, in itself and in the light of the present time. Contents will include:

- the presentation of a wide range of documents and sources
- the demonstration of empirical research on specific buildings
- the coverage of seminal and occasionally little-known projects
- the readings of historical texts by architects and critics
- the articulation of design with contemporary theoretical and political concerns

Learning Outcomes

At the end of the course, students will be able to:

- Make a detailed and comprehensive analysis of a critical urban ensemble
- Support this analysis with the best available sources
- Situate the project within the context when it was made
- Assess the value and limitations of a project

- Express a coherent view about its potential as an urban model.

Submission

- Essay (2,500 words)

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis
- Show competence in the observation and the research on a work of urban form.
- Show an awareness of the main issues prevailing at the time of its conception.

Approach and development
- Demonstrate independence of thought in making a judgment on the quality of a project.

Resolution and communication
- Be supported with relevant documents including drawings and photographs.
- Articulate a point of view relating to the relevance of a project to the present time.

TITLE	CORE STUDIO/THESIS – THESIS		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Lawrence Barth, Jorge Fiori, Florian Dirschedl, Dominic Papa, Elena Pascolo, Irénée Scalbert, Anna Shapiro, Steve Sinclair	Term	3 and 4
		Credits	100 • 10 Thesis brief • 90 Thesis
Learning Methods	Seminars Tutorials	Workload	1,000 hours study, inclusive of teaching contact: 120 hours teaching/880 hours self-directed study

Synopsis

In Term 3, H&U students separate into MA and MArch groups for the purposes of pursuing their Final Theses (MA) or Design Theses (MArch). The MA Final Thesis presents students with an opportunity for extended and focused study within the broader themes of the programme, and concludes with a written, graphically developed, and analytical dissertation showing conceptual and theoretical grasp of a problem in architectural urbanism. In contrast with the MArch Design Thesis, the MA Final Thesis does not develop a project, but demonstrates its position through scholarly command over relevant exemplary projects and the applicability of their lessons to a current urban challenge. The work involves a substantial element of background research into the student's chosen area of study, and an expectation of a highly developed written work and extensive visual support with a strong emphasis upon critical, evaluative, and synthetic reasoning within urbanism.

Aims

The thesis study enables students to experience sustained investigation into an urban problem, to evaluate possible responses, and to build critical arguments for approaches currently being pursued within the field. It helps students to develop a capacity for comprehensive and synthetic reasoning in relation to current trends, and to develop scholarly depth and breadth of understanding regarding the contribution of architecture and urban design to the challenge of changing cities.

Content

The content of the thesis study is defined by each individual student in consultation with his or her supervisor but will be selected from within the areas of thematic interest of the programme. This content will be further elaborated and extended through individual research and presented for review and development both formally and in tutorial settings.

Submissions

- Thesis Brief (4,000 words)
- Final Thesis (12,000 – 15,000 words)

Assessment Methods

Submission of a Thesis Brief at the end of Term 3 showing command of the overall course material and its application to a well-defined challenge of urban transformation.
Submission of a Final Thesis of 12,000 – 15,000 words, along with supporting graphic material. The work is assessed by two markers from the programme staff.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Clear evidence of research
- Sound analytical capacity

Approach and development

- Clear and consistent argumentation
- Depth and breadth in the argument

Resolution and communication

- Excellence in organization and execution of the writing
- Effective selection and use of graphic material to develop the argument

SECTION 7:

PG MArch IN LANDSCAPE URBANISM

7.1 PROGRAMME INTRODUCTION

Landscape Urbanism is a postgraduate design programme at the Architectural Association leading to a Master of Architecture (PG MArch, 16 months) in Landscape Urbanism.

The programme explores the role that designs and designers – from architects and landscape architects to urban designers and planners – can play when confronted with the processes, landscapes and territories of planetary urbanisation (metropolitan areas, rural environments, infrastructural and productive landscapes, etc) and the environmental, racial, socio-economic and health-related crises they have triggered. Planetary urbanisation is structured by an economic model based on policies that have been shaped by 'human relations of power, production, and environment-making in the web of life'. In this context, LU explores the design, beyond normative aesthetic and performative proposals, as a mechanism to shape progressive policies with which to orchestrate, choreograph and negotiate political and economic frameworks to avert the contemporary ecological crisis. To this end, LU is inherently transdisciplinary, integrating critical thinking at its core and knowledge coming from practices including policymaking, political ecology, cartography, environmental history, ecological economics, scripted simulations and participatory tools. Alongside this, various forms of media representation are explored to ensure the design of policies is widely available and accessible to the general public. Beyond the design of single buildings or pieces of urban design, AA Landscape Urbanism is interested in designing policies that directly impact landscapes to develop, organizational models, innovative regulatory plans and visual decision-making tools with the capacity to integrate design within world-ecology frameworks. The aim of the programme is to contribute to the enhancement of the discipline by making it more relevant to wider conversations, dialogues and debates with different disciplines (geography, economy, law, ecology, political science, agroecology etc.), highlighting the unique capabilities of design to offer alternatives to the contemporary crises we are experiencing.

The programme uses as a backbone the design of policies and sees it as a potential field of design praxis. Through this lens, it operates within contemporary conditions whereby urban environments are understood as intrinsically interconnected and related webs of landscapes necessary for them to operate and with implications at local, regional, and planetary scales. This interconnectedness explains the current planetary environmental breakdown, energy crisis, water/food/land consumption and depletion, widespread pollution, and social injustices, all disguised by ecological and sustainable design-driven agendas for the urbanised world.

7.2 AIMS

Landscape Urbanism works as a design research course that explores relevant landscape and urban histories and theories methods and uses relevant landscape, cartographic and design techniques to produce critical Landscape Urbanism projects. At the end of the programme, students are expected to work as design professionals capable of handling large-scale, trans-disciplinary projects with particular expertise on the spatial impacts policies have in the landscape design and dynamics applicable to a variety of professional disciplines such as architecture, landscape architecture, urban design and planning as well as develop skills to collaborate with organisations and think tanks working on the design of progressive policies in the UK.

The Landscape Urbanism Master in Architecture (March) degree produces site-specific projects that work as an operative test bed of landscape design policies. The March projects rely on the application and on-site implementation of techniques and theories into concrete designed scenarios. The MArch degree fosters a way of thinking in which the overarching questions developed in the landscape design policies and the specificity of site conditions will be mutually feedback and negotiated. Students are expected to develop in-depth research on the given site, in close collaboration with local universities, organisations, communities

and institutions. The final dissertation work will contribute to critical reflection on the theoretical aspects of the course and discuss the relevancy of the discipline in the given specific context.

The programme has as main educational objectives the following:

- To form design professionals, able to participate in largescale, multi-disciplinary projects with the capacity to read and analyse landscape and territorial dynamics using latest urban theories and methodologies aid by new technologies.
- Approach the design of urban, landscape and territorial environments based on critical thinking and landscape/ecological models to understand, interrogate contemporary urban conditions, and project potential alternatives.
- Develop methods for long-term research on novel forms of cartographical representation, socio-economic analysis, and landscape dynamics simulation.
- Develop design methodologies that are inclusive of projects, theories, and techniques from relevant disciplines (Geomorphology, Economy, Geography) that engages with the wider disciplinary problem of 'territory' as a praxis and design field.

The specific educational aims which are emphasized in the March degree course are linked to the development of practices aligned to the specificity and synthetic approach of policy design implementation in a given site. These can be described as follows:

- Develop professionals who can generate detailed design strategies from the research on urban landscape processes which has been conducted in the studio.
- Work across scales, generating rich spatial design proposals derived from the study of landscape formations derived from socioeconomic, political and ecological forces.

Develop spatial design strategies which address both specific conditions (detailed social and environmental conditions) but can also respond to methods of policy design and implementation at a specific level.

7.3 LEARNING OUTCOMES

INTENDED LEARNING OUTCOMES: PG MArch in Landscape Urbanism; FHEQ LEVEL 7	
Learning Outcomes 'LO'	Aligned to the Framework for Higher Education Qualifications (FHEQ) and QAA Subject Benchmark (Architecture), on successful completion of the PG MArch in Landscape Urbanism students will be able to:
A	**Knowledge and Understanding**
A1	Develop a project brief which is critically situated within a wider architectural–landscape–urbanism policy discourse.
A2	Demonstrate a critical understanding of current theories and practice within the field of urbanism, landscape and ecology. Analyse complex territorial contexts as well as design concepts by means of a synthesis of personal and workplace reflection and data drawn from scholarship, research and personal enquiry.
A3	Evaluate complex and even contradictory theories and present their findings in a well-argued presentation.
A4	Undertake independent research with minimum guidance and synthesize that information in a well-constructed argument leading to a conclusion.
A5	Develop an understanding of socio-environmental issues.
A6	Develop an understanding of policy design and input into the design field.
B	**Intellectual Skills**
B1	Generate graphic material capable of outlining information clearly and concisely.
B2	Generate new design concepts for their project and support the achievement of desired outcomes at a professional or equivalent level.
B3	Demonstrate the ability to communicate ideas orally and demonstrate the capability to structure and show complex ideas through graphic and visual means.
B4	Write and design well-structured essays and visual essays that show evidence of independent research, make an argument clearly and effectively, present original ideas and conclusions, and use a standard style for referencing.
B5	Make use of diagrammatic drawings, 3D software, mapping and physical models to enable decision-making in complex and unpredictable situations.
C	**Research Skills**
C1	Evaluate critically current research, advanced scholarship or professional practice in the discipline or field of study.
C2	Evaluate methodologies and develop critiques of them and, where appropriate, propose new hypotheses.
C3	Plan, develop and apply research methods, retrieving and interpreting information from a wide range of sources.
C4	Synthesise design and theoretical research and report clearly, accurately and eloquently on findings.
C5	Represent and visualise clearly in design and writing.
C6	Continue to advance their knowledge and understanding, and to develop new skills at a high level.

D	Transferable Skills
D1	Exercise initiative and personal responsibility and accept accountability for decision-making including the use of supervision.
D2	Be able to make decisions in complex and unpredictable situations.
D3	Have achieved the independent learning ability required for continuing professional development.
D4	Be able to organise decision-making processes.
D5	Work and adapt to different team experiences, sharing, negotiating and presenting information and contributing to the formulation of a design proposal in relation to policy making.
D6	Manage others' work and adapt the course design methodology to gain insight into complex urban and territorial problems.

7.4 ASSESSMENT CRITERIA

All learning outcomes must be met in order to achieve a pass overall. The assessment of submitted work is based on the following overall assessment. The assessment of submitted work is detailed in each of the below sections of this Programme Guide. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Design Criteria
- Context and analysis
- Process and synthesis
- Resolution and communication

Technology Criteria
- Context and analysis
- Approach and synthesis
- Resolution and communication

History and Theory Criteria
- Research and knowledge acquirement
- Approach and development
- Argument and communication

Professional Practice Criteria
- Knowledge acquirement
- Integration and synthesis
- Clarity of communication

7.5 CREDIT FRAMEWORK

Term	Course Title	Credits
1	Core Module 1 – Territorial Formations (Design Studio)	20
2	Core Module 2 – Carto-Genesis (Design and Research Studio)	20
1	Core Module 3a – Models Methods and Concepts (History and Theory Seminar)	15
2	Core Module 3b – The Rhetoric of Mapping (History and Theory Seminar)	15
2	Core Module 4 – World-Ecology and Policy Design (Seminar)	15
3 + 4	Core Studio/Thesis – Design Thesis	95

7.6 TEACHING AND LEARNING METHODS

The programme's design studios, technical and computational workshops, seminars and lectures are thematically and pedagogically related, providing students with the necessary information, knowledge, skills, and guidance to undertake the required project work and complete the programme.

The programme is organized around a Design Studio which is theoretically supported by a series of Seminars and Lectures and a Field Trip to collect and verify data. The Design Studio is based on a series of weekly tutorials and intensive workshops. Both Design Studio and Seminars and Lectures provide individual and group tutorials and teaching available throughout the academic year, and on a more limited basis from July to September.

The principal process of learning in the programme is the development of the students' personal and team agendas throughout the year, which starts with a series of short-term group workshops in Term 1, tailored to acquire a wide range of tools and geared toward long-term group proposals. It then moves to the development of group agendas in Terms 2 and 3 for group projects to focus during Term 4 on the development of design documents leading to a design thesis during summer.

The learning processes of the programme can be summarised as follows:

- Undertaking design research, which must be completed and presented at given stages of the programme.
- Attending prescribed lectures and participating in seminars which include readings and group discussions.
- Researching, designing and writing individual essays related to core seminars and lectures.
- Taking part in field trips and workshops.
- Attending open lectures and other special events organised by the AA
- Preparing digital and physical portfolios.
- Preparing a printed and bound document of the individual design development by Terms 1 and 2 and group design thesis by the end of the programme.
- Distinguishing between studio group work and deliverables from individual work and deliverables. An important aspect of the programme is the opportunity for students to experience both individual research and collaborative research which is clearly outlined in the assessing methods of each individual course.

7.7 COURSES

TITLE	CORE MODULE 1 – TERRITORIAL FORMATIONS (DESIGN STUDIO)		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Jose Alfredo Ramírez, Eduardo Rico, Clara Oloriz, Daniel Kiss, Sheng-Yang Huang	Term	1
		Credits	20
Learning Methods	Tutorials Juries Self-directed learning	Workload	200 hours study, inclusive of teaching contact: 48 hours teaching/152 self-directed study

Synopsis

The first-term design studio provides an understanding of planetary urbanisation dynamics, geomorphological processes, environmental emergencies, and landscape techniques to form the methodology behind Landscape Urbanism projects. Landscape Urbanism wants to reveal and expose the processes and dynamics behind current modes of planetary urbanisation to imagine, design and project unconventional forms of territorial organisation and offer alternative scenarios to current urbanisation models. These alternative models and scenarios will rely on the historic capacity of landscapes to host, resist and modulate the struggles and contradictions between physical/environmental and the socio-political forces existing in given territories.

Aims

The aims of the first term studio is the development of students' critical thinking, design tools and methods to produce AA Landscape Urbanism projects. The design studio is composed of three distinct workshops and students are meant to collaborate with different teams in each of these workshops. During the development of the workshop a series of software tools, including Rhino, Grasshopper, GIS and Programming, will be given next to communication and representational drawing skills. Alongside the software tools and technical skills, a series of research and critical methodologies will be provided so students can produce alternative forms of visualisation in the form of critical cartographies, simulations, dynamic maps or web apps.

Content

Workshop 1: Design and Policy in the Capitalocene: This workshop highlights the intrinsic relationship between policymaking and design and enables students to understand how these processes have shaped most of the landscapes we inhabit. Students will create physical models and explore stop-motion animation techniques to visualise both the impact of existing and progressives' policies as well as the benefits or damage they could cause. With the physical models' students will explore future scenarios that describe how alternative policies can build fair and equal landscapes for the benefit of local communities. This enquiry will be supported by a series of model making sessions focusing on visualisation and design techniques.

Workshop 2: Consequential Landscapes: Consequential Landscapes workshop will seek an understanding of the processes behind today's planetary urbanisation. It explores cartographic techniques and ways in which students can visualise the multiple forms of socio-economic and political organizations and specific spatial configurations produced by current models of urbanisation. This workshop will be supported by the London Mining Network and the Visual Investigations Team from the Financial Times. The workshops will build students' connections with local communities and show them the latest knowledge and

technologies in the field of spatial investigations and accountability of trans-national conglomerates and extractives corporations shaping today's planetary urbanisation.

Learning Outcomes

At the end of the course, students should be able to:

- A1: Develop a project brief which is critically situated within a wider architectural – landscape – urbanism territorial discourse
- A4: Undertake independent research with minimum guidance and synthesize that information in a well-constructed argument leading to a conclusion
- A5: Develop an understanding of environmental issues
- A6: Develop an understanding of infrastructural input into the design
- B1: Generate graphic material capable of outlining information clearly and concisely
- B2: Generate new design concepts for their project and support the achievement of desired outcomes at a professional or equivalent level

Submission

- Individual Report

Assessment Methods

Students are asked to submit an individual report of their work developed in each workshop at the beginning of term 2. This includes:

- Clearly articulate of arguments and objectives for each workshop developed.
- Relevant visual and graphic outcomes of given workshops.
- Relevant outcomes of simulations or cartographies researched.
- Explanation of specific techniques (codes and landscape representation) used during the workshops.
- Text outlining methods and outcomes.
- Images/renders and diagrams outlining the process and main outcomes.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Design Criteria:

Context and analysis
The Term 1 Design Portfolio demonstrates a systematic understanding and critical awareness of relevant contextual factors such as site conditions, social, political, historical, economic, environmental, and ethical issues applicable to the architectural, landscape and urban design projects directly linked to existing or proposed policies, planetary urbanisation processes or participatory devices. Analysis is undertaken in relation to the needs of the intended user groups and the complexities of the location and its impact into conditions at regional, national, and global scales. Appropriate conceptual, critical and/or technological precedents, methodologies, practices and/or tools inform the parameters of the argument, satisfying specific contextual and analytical requirements.

Process and synthesis
Research into appropriate contextual, conceptual, critical and/or technological precedents, methodologies, practices and/or tools is synthesised into the design process, allowing for creative decision-making, relevant design strategies, experimentation, and originality, explored from community, decision maker and designer perspectives. Feedback is integrated into a self-directed design process that demonstrates criticality and independent learning skills, and the ability to work in a group, required for continuing professional and academic development.

Resolution and communication
Design proposals are resolved to a satisfactory standard based on its response to specific policies, existing or proposed, and their deployment at multiple scales (neighbourhood, metropolitan, regional) with appropriate methodologies deployed in the production of appropriately ambitious propositional design work. Project work is organised, structured and communicated effectively through a range of considered representational methods and visual, verbal and written skills.

Technology Criteria:

Context and analysis
The Term 1 Design Portfolio demonstrates a systematic understanding and critical awareness of relevant contextual factors such as, consequential landscapes, global supply chains, site conditions, social, political, historical, economic, environmental and ethical issues that influence the technical and policy strategy developed in the project an its overall impact on the ongoing ecological crises. A particularly important aspect is the response and relation to existing or propose polices to which the design is attached or responsive to, according to the brief. A range of critical precedents, methodologies, practices and/or tools at the forefront of the discipline are investigated to inform the environmental, policy and technical parameters of the brief.

Approach and synthesis
An integrated technical, policy and environmental method is demonstrated through the application of research into precedents, policy proposals, contemporary technologies, materials and processes. Environmental, policy and technical knowledge acquired and/or findings are synthesised into a self-directed and critical decision-making process, demonstrating originality in tackling problems, an informed approach toward a socio/environmental justice approach to design, group and independent learning and the skills required for continuing professional and academic development.

Resolution and communication
The Term 1 Design Portfolio demonstrates the ability to analyse and refine technical, environmental and policy concepts, communicating sound judgements and a critical understanding of the implications of technical, environmental and policy design decisions at a range of scales over the lifecycle of the project. Through resolution, the project addresses the policy-oriented, projective and, if applicable, functional requirements of the given project. The work is structured and organised effectively and communicated through advanced visual, verbal and written communication techniques.

TITLE	CORE MODULE 2 – CARTO-GENESIS (DESIGN AND RESEARCH STUDIO)		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Jose Alfredo Ramírez, Eduardo Rico, Clara Oloriz, Daniel Kiss, Sheng-Yang Huang	Term	2
		Credits	20
Learning Methods	Tutorials Juries Self-directed learning	Workload	200 hours study, inclusive of teaching contact: 48 hours teaching/152 self-directed study

Synopsis

The second term design studio aims to develop the basis for a research-by-design thesis. A research methodology will be provided and investigations of the potential topic of the thesis will have to be aligned with the overall agenda of the year. The research will bring together geomorphological processes and social and territorial formations as the basis to formulate a Landscape Urbanism design thesis. The studio will use as a main tool, the exploration and exercise of historical and contemporary forms of cartographic representation in a broader sense which include but is not limited to maps, videos, simulations, dynamic cartographies, web apps, etc. This will serve as the basis from which to design and project an alternative form of territorial organisation and a detailed design of various aspects such as landscape and architectural typologies, spatial policies, organizational territorial models, innovative regulatory plans and visual decision-making tools that will be developed as part of the final dissertation.

Aims

The aims of this module are to develop a strong research base for the year-long project. The students should work in teams and develop independent research, which serves as the basis for further ideas and proposals in their design studio Terms 3 and 4., By the end of the studio students will be able to generate an atlas of similar and relevant territories across UK, Europe or the world, tracing the geographic problematic posed by the social and geomorphological formations outlined and researched by the student and teamwork as well as relevant documents such as cartographies, interactive tools and digital simulations.

Content

This section of the course is composed of:

- 2 weekly tutorials that help frame the project and guide the students in their production research.
- 8 GIS training sessions supplement and help students develop the relevant cartographies and maps and representation techniques.
- 8 Web app sessions to provide students with a digital tool to collect, expose and store their research and project thesis.

Learning Outcomes

At the end of the course, students should be able to:

- B3: Demonstrate the ability to communicate ideas orally and demonstrate the capability to structure and show complex ideas through graphic means.
- B5: Make use of diagrammatic drawings, 3D software, mapping and physical models to enable decision-making in complex and unpredictable situations.

- C1: Evaluate critically current research, advanced scholarship or professional practice in the discipline or field of study.
- C2: Plan, develop and apply research methods, retrieving and interpreting information from a wide range of sources.

Submission

- Group Design Portfolio

Assessment Methods

Students must submit a group Design Portfolio which outlines the aims, objectives and outcomes of their design project by the beginning of term 3. This Project portfolio includes the following:

- Research introduction and site specifics.
- Text outlining the research project aims, arguments and methodology (2000 words).
- Design experiments (workshop outcomes etc.).
- Main research lines and research outcomes.
- The layout and organisation of Research cartographies and drawings throughout term 2.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Design Criteria:

Context and analysis
The Term 2 Design Portfolio demonstrates a systematic understanding and critical awareness of relevant contextual factors such as site conditions, social, political, historical, economic, environmental, and ethical issues applicable to the architectural, landscape and urban design projects directly linked to existing or proposed policies. Analysis is undertaken in relation to the needs of the intended user groups and the complexities of the location and its impact into conditions at regional, national, and global scales. Appropriate conceptual, critical and/or technological precedents, methodologies, practices and/or tools inform the parameters of the argument, satisfying specific contextual and analytical requirements.

Process and synthesis
Research into appropriate contextual, conceptual, critical and/or technological precedents, methodologies, practices and/or tools is synthesised into the design process, allowing for creative decision-making, relevant design strategies, experimentation, and originality, explored from community, decision maker and designer perspectives. Feedback is integrated into a self-directed design process that demonstrates criticality and independent learning skills, and the ability to work in a group, required for continuing professional and academic development.

Resolution and communication
Design proposals are resolved to a satisfactory standard based on its response to specific policies, existing or proposed, and their deployment at multiple scales (neighbourhood, metropolitan, regional) with appropriate methodologies deployed in the production of appropriately ambitious propositional design work. Project work is organised, structured and communicated effectively through a range of considered representational methods and visual, verbal and written skills.

Technology Criteria:

Context and analysis
The Term 2 Design Portfolio demonstrates a systematic understanding and critical awareness of relevant contextual factors such as consequential landscapes, global supply chains, site conditions, and social, political, historical, economic, environmental and ethical issues that influence the technical and policy strategy developed in the project and its overall impact on the ongoing ecological crises. A particularly important aspect is the response and relation to existing or propose policies to which the design is attached or responsive, according to the brief. A range of critical precedents, methodologies, practices and/or tools at

the forefront of the discipline are investigated to inform the environmental, policy and technical parameters of the brief.

Approach and synthesis
An integrated technical, policy and environmental method is demonstrated through the application of research into precedents, policy proposals, contemporary technologies, materials and processes. Environmental, policy and technical knowledge acquired and/or findings are synthesised into a self-directed and critical decision-making process, demonstrating originality in tackling problems, an informed approach toward a socio/environmental justice approach to design, group and independent learning and the skills required for continuing professional and academic development.

Resolution and communication
The Term 2 Design Portfolio demonstrates the ability to analyse and refine technical, environmental and policy concepts, communicating sound judgements and a critical understanding of the implications of technical, environmental and policy design decisions at a range of scales over the lifecycle of the project. Through resolution, the project addresses the policy-oriented, projective and, if applicable, functional requirements of the given project. The work is structured and organised effectively and communicated through advanced visual, verbal and written communication techniques.

TITLE	CORE MODULE 3a – MODELS METHODS AND CONCEPTS (HISTORY AND THEORY SEMINAR)		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Clara Oloriz, Elena Luciano	Term	1
Learning Methods	Lectures Seminars	Credits	15
		Workload	150 hours study, inclusive of teaching contact: 25 hours teaching/125 self-directed study

Synopsis

This lecture and seminar-based course is concerned with the ways in which the intersections and interactions of landscape and urbanism have been thought, modelled, designed and analysed. It is designed to introduce the student to a critical engagement with these matters that will inform an understanding of the potentials and problematics of Landscape Urbanism. This, in turn, is designed to support practice and development within the studios, workshops, field trips and other seminars.

Aims

The purpose of this seminar is to introduce the main concepts which underpin the overall course ethos and methodologies. It should provide a robust framework for discussion of the development of the student projects within the studio as well as facilitate links to other seminars and parts of the course.

Content

- Session 1: Landscape: The meanings and significance of the term landscape
- Session 2: Social Formations: Venice
- Session 3: Territory, Terrain, Territorialisation
- Session 4: Consequential Landscapes and Nature
- Session 5: Infrastructure and the Urban/Rural
- Session 6: Design Agency
- Session 7: Time
- Session 8: Essay Tutorials

Learning Outcomes

At the end of the course, students should be able to:

- A2: Demonstrate a critical understanding of current theories and practice within the field of urbanism, landscape and ecology A – analyse complex territorial contexts as well as design concepts by means of a synthesis of personal and workplace reflection and data drawn from scholarship, research and personal enquiry.
- A3: Evaluate complex and even contradictory theories and present their findings in a well-argued presentation.
- A4: Undertake independent research with minimum guidance and synthesize that information in a well-constructed argument leading to a conclusion.

- B4: Write a well-structured essay that shows evidence of independent research, makes an argument clearly and effectively, presents original ideas and conclusions, and uses standard style for referencing.
- C1: Evaluate critically current research, advanced scholarship or professional practice in the discipline or field of study.
- C2: Evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses.
- C3: Plan, develop and apply research methods, retrieving and interpreting information from a wide range of sources.
- C6: Continue to advance their knowledge and understanding, and to develop new skills to a high level.

Submission

- Individual Essay (2,500 words)

Assessment Methods

Students will select projects to investigate and discuss (an overview and list of suggestions will be provided at the beginning of the term.) The submission consists of an individual visual and written essay of 2,500 words, analysing the critical content of a landscape urban project, and linking the analysis of the project to current debates within landscape urbanism, to be submitted at the beginning of term 2. Attendance and active participation to seminars and personal tutorials are mandatory requirements. The assessments include students contributions to the seminar work developed over the year.

Assessment Criteria

In acknowledging the range of student experience and interests, the assessment criteria will reflect this diversity and respond to the scholarly objectives of individual students based on the following criteria. All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Research and knowledge acquirement
Research into the chosen area for the submission of this essay and visual essay is independently undertaken, demonstrating a comprehensive understanding and critical awareness of the relevant histories and theories of social, political, historical, theoretical, economic, environmental and/or ethical contexts, concepts, ideas and/or precedents at the forefront of landscape and urban disciplines, being addressed through systematic enquiry. The student should be able to develop a critical position that echoes the works of the seminar authors while making original contribution. The submissions demonstrate analysis, contextualisation, argumentation, debate of the content of the research conducted.

Approach and development
The written and visual essay submitted demonstrate an inventive and original approach to the consolidation and development of research, with a consistent process of synthesising acquired knowledge is evidenced in the work. The structures, methods and/or tools utilised in the production of the work demonstrate initiative, self-directed learning, the ability to work in a group where necessary, and the skills to make complex decisions. It also uses a range and selection of relevant sources of information. a seminar discussion, a field trip, or an event from personal life-. In the visual essay, the student should be able to demonstrate the ability to develop a meaningful argumentation with both text and media e curation.

Argument and communication
The essay and visual essay demonstrates the ability to devise and sustain complex arguments, contextualised effectively in a wider field of relevant ideas with a critical position determined. Conclusions and/or reflections are well executed, with good judgement shown in the absence of complete data. Appropriate narrative is communicated effectively through a range of critical visual argument, adequate use of images, and other media, representational methods and visual, verbal and written skills. The research is conducted through a range, selection and use of resources, with adequate referencing. Written and visual communication skills are evidenced to a high standard throughout, and the work demonstrates the abilities developed to undertake further research. The work should be properly cited.

TITLE	CORE MODULE 3b – THE RHETORIC OF MAPPING (HISTORY AND THEORY SEMINAR)		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Clara Oloriz, Elena Luciano	Term	2
Learning Methods	Lectures Seminars	Credits	15
		Workload	150 hours study, inclusive of teaching contact: 25 hours teaching/125 self-directed study

Synopsis

This seminar addresses key points and practices in the historical development of cartography as a representational device. Methods of mapping are explored in terms of their uses, implications and potential so as to critically inform the drafting of a Carto-Genetic manifesto and the writing of the final project thesis.

Aims

The purpose of this seminar is to introduce the main concepts which underpin the practice of historical and contemporary practice of cartography. It provides a robust framework for discussion of the development of the student projects based of the representational skills but most importantly the critical approach and reflection of cartography as a medium of representation within the studio. It also aims to serve as the link between theoretical approaches and practices within cartography and within the programme.

Content

- Session 1: Projective Cartographies
- Session 2: How to assemble the globe: Radical Cartographies
- Session 3: Excavation, Archaeology and Geology
- Session 4: Cartographies of Knowledge and Power
- Session 5: Information: Dataspaces and Networks
- Session 6: Projections
- Session 7: Meta-geographies and Planetary Urbanisation
- Session 8: Essay Tutorials

Learning Outcomes

At the end of the course, students should be able to:

- A2: Demonstrate a critical understanding of current theories and practice within the field of urbanism, landscape and ecology A – analyse complex territorial contexts as well as design concepts by means of a synthesis of personal and workplace reflection and data drawn from scholarship, research and personal enquiry.
- A3: Evaluate complex and even contradictory theories and present their findings in a well-argued presentation.
- A4: Undertake independent research with minimum guidance and synthesize that information in a well-constructed argument leading to a conclusion.

- B4: Write a well-structured essay that shows evidence of independent research, makes an argument clearly and effectively, presents original ideas and conclusions, and uses standard style for referencing.
- C1: Evaluate critically current research, advanced scholarship or professional practice in the discipline or field of study.
- C2: Evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses.
- C3: Plan, develop and apply research methods, retrieving and interpreting information from a wide range of sources.
- C6: Continue to advance their knowledge and understanding, and to develop new skills to a high level.

Submission

- Individual Essay (2,500 words)

Assessment Methods

Students will select projects and specific cartographies to investigate and discuss (an overview and list of suggestions will be provided at the beginning of the term). The submission consists of an individual visual and a written essay of 2,500 words, analysing the critical content of an urban project or any other case study, body of research, or cartographic material and linking the analysis of the project to current debates within geographical and cartographic practices linked to urbanisation processes, to be submitted at the beginning of term 3.

Assessment Criteria

In acknowledging the range of student experience and interests, the assessment criteria will reflect this diversity and respond to the scholarly objectives of individual students based on the following criteria.

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Research and knowledge acquirement
Research into the chosen area for the submission of the written and visual essay is independently undertaken, demonstrating a comprehensive understanding and critical awareness of the relevant social, political, historical, theoretical, economic, environmental and/or ethical contexts, concepts, ideas and/or precedents at the forefront of landscape, geographical and cartographic practices, being addressed through systematic enquiry.

Approach and development
The written and visual essay submitted demonstrate an inventive and original approach to the consolidation and development of research, with a consistent process of synthesising acquired knowledge is evidenced in the work. The structures, methods and/or tools utilised in the production of the work demonstrate initiative, self-directed learning, the ability to work in a group where necessary, and the skills to make complex decisions. It also uses a range and selection of relevant sources of information.

Argument and communication
The visual essay demonstrates the ability to devise and sustain complex arguments, contextualised effectively in a wider field of relevant ideas with a critical position determined. Conclusions and/or reflections are well executed, with good judgement shown in the absence of complete data. Written and visual communication skills are evidenced to a high standard throughout, and the work demonstrates the abilities developed to undertake further research.

TITLE	CORE MODULE 4 – WORLD-ECOLOGY & POLICY DESIGN (SEMINAR)		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Jose Alfredo Ramirez, Elena Luciano, Rob Booth, Camila Arretche	Term	2
		Credits	15
Learning Methods	Lectures Seminars	Workload	150 hours study, inclusive of teaching contact: 25 hours teaching/125 self-directed study

Synopsis

Given the climate and ecological emergency the world is facing, it is paramount importance that those involved in designing landscapes (whether architects, landscape architects, artists, planners, or engineers) support a socially just re-structuring of the world we inhabit. This effort should be intrinsically dependant on the health of the earth systems and trigger, in turn, a radical transformation of the role we can collectively play in developing design proposals, mitigation strategies, advocacy initiatives and activism.

One way to achieve this is by learning and contributing to the design of progressive policies such as the various proposals for a Green New Deal (GND), Degrowth scholarship, Reparations theories which offers a viable initiative with the capacity to unite all of the best intentions, preoccupations and proposals of the design community at large.

The series is based on the knowledge and expertise from Common-Wealth a UK think tank that offered lectures, seminar and tutorials on a variety of themes from which student work derive the overall design agenda and research.

Aims

The aim of the series of lectures and seminars is to build the capacity of the landscape urbanism programme to explore the role of the designer in delivering economic and public policy change through design.

Content

- Session 1: Introducing to World-Ecology & Policy Design
- Session 2: World Ecology and the Capitalocene
- Session 3: Why policy design and how to design policies
- Session 4: UK wide policies
- Session 5: Progressive Policy Design Think Tanks I
- Session 6: Progressive Policy Design Think Tanks II
- Session 7: The Agrarian Question
- Session 8: Essay revision session

Learning Outcomes

At the end of the course, students should be able to:

- A2: Demonstrate a critical understanding of current theories and practice within the field of urbanism, landscape and ecology A – analyse complex territorial contexts as well as design concepts by means

of a synthesis of personal and workplace reflection and data drawn from scholarship, research and personal enquiry.
- A3: Evaluate complex and even contradictory theories and present their findings in a well-argued presentation.
- A4: Undertake independent research with minimum guidance and synthesize that information in a well-constructed argument leading to a conclusion.
- A5: Develop an understanding of environmental issues.
- A6: Develop an understanding of infrastructural input into the design.
- B4: Write a well-structured essay that shows evidence of independent research, makes an argument clearly and effectively, presents original ideas and conclusions, and uses standard style for referencing.
- C1: Evaluate critically current research, advanced scholarship or professional practice in the discipline or field of study.
- C2: Evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses.
- C3: Plan, develop and apply research methods, retrieving and interpreting information from a wide range of sources.

Submission

- Individual Essay (1,500 words)

Assessment Methods

Students will select projects and specific cartographies to investigate and discuss (an overview and list of suggestions will be provided at the beginning of the term). The submission consists of an individual visual and a written essay of 2,500 words, analysing the critical content of an urban project or any other case study, body of research, or cartographic material and linking the analysis of the project to current debates within geographical and cartographic practices linked to urbanisation processes, to be submitted at the beginning of term 3.

Assessment Criteria

In acknowledging the range of student experience and interests, the assessment criteria will reflect this diversity and respond to the scholarly objectives of individual students based on the following criteria. All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Research and knowledge acquirement
Research into the chosen area of study is independently undertaken, demonstrating a comprehensive understanding and critical awareness of the relevant social, political, historical, theoretical, economic, environmental and/or ethical contexts, concepts, ideas and/or precedents at the forefront of the architectural, landscape and urban studies disciplines, being addressed through systematic enquiry. The work should expand and dialogue with the seminar authors through cases, policy frameworks, interventions, claims, or other contemporary event that relates to the World-Ecology & Policy Design and the thesis topics.

Approach and development
The work submitted demonstrates an inventive and original approach to the consolidation and development of research, with a consistent process of synthesising acquired knowledge is evidenced in the work. The structures, methods and/or tools utilised in the production of the work demonstrate initiative, self-directed learning, the ability to work in a group where necessary, and the skills to make complex decisions. It also uses a range and selection of relevant sources of information.

Argument and communication
The work demonstrates the ability to devise and sustain complex arguments, contextualised effectively in a wider field of relevant ideas with a critical position determined. Conclusions and/or reflections are well executed, with good judgement shown in the absence of complete data. Written and visual communication skills are evidenced to a high standard throughout, and the work demonstrates the abilities developed to undertake further research. Text and media are entwined through a cohesive narrative developed through a visual essay.

TITLE	CORE STUDIO/THESIS – DESIGN THESIS		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Jose Alfredo Ramírez, Eduardo Rico, Clara Oloriz	Terms	3 and 4
		Credits	95
Learning Methods	Tutorials Juries Self-directed learning	Workload	950 hours study, inclusive of teaching contact: 150 hours teaching/800 self-directed study

Synopsis

The final dissertation is developed during the last 2 terms of the programme. This section of the course will consist of the exploration of modes of documentation that extend beyond the idea of the fixity and stability of master planning, to operate protectively and subversively. Following the development of a research based of cartographic production (atlas, cartographies, interactive tools, digital simulations), the student will produce a design manual for territorial organization follow by a details design development of a given scenario of the manual. The manual will describe the procedures and guidelines behind the project to extrapolate principles for similar, relevant locations across similar territories. The project scenarios will develop the specific outcomes and visions in a concrete context and time framework within the UK.

Aims

The aim of the final dissertation is to develop a comprehensive design project based on Landscape Urbanism principles. These projects will focus on detailed spatial and material strategies at architectural scales and will follow overall territorial guidelines. The projects will be the materialization and synthesis of policy making, technological exploration and design techniques combined to produce contemporary projects and design approaches to current global and local issues.

Content

This course is composed of:

- 2 weekly tutorials that help students develop the project and guide the students in their final production and design stages during Term 3 and 4.
- Overall arguments sessions.
- Graphic and design sessions of final booklets and guidelines for final presentations.

Learning Outcomes

At the end of the course, students should be able to:

- C3: Plan, develop and apply research methods, retrieving and interpreting information from a wide range of sources.
- C4: Synthesise design and theoretical research and report clearly, accurately and eloquently on findings.
- C5: Represent and visualise clearly in design and writing.
- C6: Continue to advance their knowledge and understanding, and to develop new skills to a high level.
- D1: Exercise initiative and personal responsibility and accept accountability for decision-making including the use of supervision.

- D2: Be able to make decisions in complex and unpredictable situations.
- D3: Have achieved the independent learning ability required for continuing professional development.
- D4: Be able to organise decision-making processes.
- D5: Work and adapt to different team experiences, sharing, negotiating and presenting information and contribute to the formulation of a design proposal at the urban and territorial scale.
- D6: Manage others' work and adapt the course design methodology to gain insight into complex urban and territorial problems.

Submission

- Individual or Group Design Thesis

Assessment Methods

Students must submit a Final Design Thesis, individual or group, which outlines the aims and outcomes of their design project. The Final Design Thesis includes the following:

- Site description.
- Text outlining aims, objectives and methodology as well as main argument of the project (2,500 words).
- Technical section essay outlining the research on building techniques, digital simulations, tests and technical data supporting the overall project (2,500 words).
- Design experiments (workshop and design development outcomes etc.).
- Main design outcomes and policy design proposals
- Images, renders and various form of landscapes representations used.

The format of this document takes the shape of a booklet, although the amount of material (images, words) is not prescribed. Students have access to previous years' Design Reports, which are discussed with the course staff to provide clear guidance of the intended outcome.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Design Criteria:

Context and analysis
The Design Thesis demonstrates a systematic understanding and critical awareness of relevant contextual factors such as site conditions, social, political, historical, economic, environmental, and ethical issues applicable to the architectural, landscape and urban design projects directly linked to existing or proposed policies. Analysis is undertaken in relation to the needs of the intended user groups and the complexities of the location and its impact into conditions at regional, national, and global scales. Appropriate conceptual, critical and/or technological precedents, methodologies, practices and/or tools inform the parameters of the argument, satisfying specific contextual and analytical requirements.

Process and synthesis
Research into appropriate contextual, conceptual, critical and/or technological precedents, methodologies, practices and/or tools is synthesised into the design process, allowing for creative decision-making, relevant design strategies, experimentation, and originality, explored from community, decision maker and designer perspectives. Feedback is integrated into a self-directed design process that demonstrates criticality and independent learning skills, and the ability to work in a group, required for continuing professional and academic development.

Resolution and communication
Design proposals are resolved to a satisfactory standard based on its response to specific policies, existing or proposed, and their deployment at multiple scales (neighbourhood, metropolitan, regional) with appropriate methodologies deployed in the production of appropriately ambitious propositional design work.

Project work is organised, structured and communicated effectively through a range of considered representational methods and visual, verbal and written skills.

Technology Criteria:

Context and analysis
The Design Thesis demonstrates a systematic understanding and critical awareness of relevant contextual factors such as, consequential landscapes, global supply chains, site conditions, social, political, historical, economic, environmental and ethical issues that influence the technical and policy strategy developed in the project and its overall impact on the ongoing ecological crises. A particularly important aspect is the response and relation to existing or propose polices to which the design is attached or responsive to, according to the brief. A range of critical precedents, methodologies, practices and/or tools at the forefront of the discipline are investigated to inform the environmental, policy and technical parameters of the brief.

Approach and synthesis
An integrated technical, policy and environmental method is demonstrated through the application of research into precedents, policy proposals, contemporary technologies, materials and processes. Environmental, policy and technical knowledge acquired and/or findings are synthesised into a self-directed and critical decision-making process, demonstrating originality in tackling problems, an informed approach toward a socio/environmental justice approach to design, group and independent learning and the skills required for continuing professional and academic development.

Resolution and communication
The Design Thesis demonstrates the ability to analyse and refine technical, environmental and policy concepts, communicating sound judgements and a critical understanding of the implications of technical, environmental and policy design decisions at a range of scales over the lifecycle of the project. Through resolution, the project addresses the policy-oriented, projective and, if applicable, functional requirements of the given project. The work is structured and organised effectively and communicated through advanced visual, verbal and written communication techniques.

Professional Practice Criteria:

Knowledge acquirement
The Design Thesis analyses and reflects upon developments and insights at the forefront of the profession of architecture, landscape architecture and urban studies. Relevant contextual information and/or precedents are critically evaluated in order to inform the parameters of an appropriately clear and complete representation of the subject matter.

Integration and synthesis
The Design Thesis demonstrates the ability to work in group or independently where necessary, integrating and synthesising contextual information and acquired knowledge through a systematic method, evidencing self-direction, originality and the ability to respond critically to the subject matter.

Clarity of communication
The work elucidates concepts, facts and opinions in an analytical manner, evidencing the ability to construct and maintain a critical position. The work is structured and organised effectively, demonstrating good use of written and visual communication skills and the independent learning ability required for continuing professional development.

SECTION 8:

PG MArch IN SUSTAINABLE ENVIRONMENTAL DESIGN

8.1 PROGRAMME INTRODUCTION

The MArch Sustainable Environmental Design (SED) is a 16-month (4 terms) postgraduate programme focusing on cutting edge design areas of architecture, urban design and engineering following environmental design principles and sustainability considerations. The Programme focuses on innovation by integrating advanced technologies, low carbon solutions, and inhabitant experience to stimulate creativity for solving world's pressing challenges related to climate change and stay ahead of lifestyle trends.

This year the Programme has established new collaborations with leading architectural and engineering practices, offering students practical experience in a research learning environment while allowing practices to gain fresh perspectives to address real-world complex issues. Aiming at emphasising its focus on current design trends and needs, the SED programme launches a new module "Low Carbon Studio" which explores design strategies and analytical methods to radically reduce carbon emissions in the built environment.

The SED pedagogy is research-led, evidence-based and practice-oriented, addressing real-life projects across climates, urban morphologies and building typologies. The taught programme is shared by the MArch and MSc cohorts and students are free to work in mixed groups on Term 1 and 2 projects.

The programme is delivered in two consecutive phases. Phase 1 (Terms 1 and 2) is organised around group projects that engage students in experimental fieldwork and computational studies using knowledge and tools introduced in weekly lectures and workshops. Building studies and design projects in Phase 1 are usually in London and involve collaborations with professional architectural and engineering practices. Refurbishing the City, a continuing SED research agenda, provides briefs for case studies of buildings and outdoor spaces in London and other major cities. On-site fieldwork is followed by computational modelling and simulation exploring alternative scenarios for adapting to climate change and post-pandemic work patterns. In Term 2, the results of these studies become the starting points for design research on mixed-use building programmes. Design research develops in parallel to presentations by invited designers and researchers setting out the state-of-the-art in environmental design research and practice.

In Phase 2 (Terms 3 and 4), research for both MSc and MArch thesis projects are conducted individually focusing on applications that benefit local communities and engage with global issues. MArch dissertation research is expected to culminate in a specific design application for a given site and brief. MArch projects differ from MSc projects, which in contrast explore the architectural potential and applicability of their research findings across climate zones and building types within selected geographic regions. Research for both thesis projects follow the methodology outlined by the taught programme as first applied to group projects in Terms 1 and 2. Research outcomes are assessed from the viewpoint of occupants, envisaging variations in occupancy, and measured against current practice and evolving performance standards.

Since its first cycle in 2005-06 the SED programme's MArch and MSc options have delivered some 500 completed dissertation projects set in locations across 60 countries and 150 cities, both north and south of the equator. These projects now form part of a growing SED archive that has already provided material for over 100 publications in books, journals and conference proceedings. AA SED student projects have been published in scientific and architectural journals, as well as in a number of books. The programme's graduates are in high demand from both architectural and engineering practices. Over the years many AA SED alumni have achieved senior positions in practice and academia and have themselves influenced the adoption of sustainable design in many countries and climatic regions.

8.2 AIMS

Aims of the MArch Sustainable Environmental Design are to provide objective criteria, knowledge and tools for conceiving, defining, developing and assessing environmental functions, attributes and performance of buildings and outdoor spaces in different climates and urban contexts. The taught programme and project work equip students with cognitive, experiential, analytical and generative skills for engaging in interdisciplinary design research and practice. The MArch dissertation project offers a unique opportunity for combining rigorous technical research and original design applications.

8.3 LEARNING OUTCOMES

INTENDED LEARNING OUTCOMES: PG MArch in Sustainable Environmental Design; FHEQ LEVEL 7	
Learning Outcomes 'LO'	Aligned to the Framework for Higher Education Qualifications (FHEQ) and QAA Subject Benchmark (Architecture), on successful completion of the PG MArch in Sustainable Environmental Design students will be able to:
A	**Knowledge and Understanding**
A1	Demonstrate knowledge and understanding of key concepts of sustainable environmental design.
A2	Demonstrate familiarity with energy modelling and the use of environmental simulation of buildings and outdoor spaces to inform design decisions.
A3	Identify and assess key parameters characterising building types and significant architectural precedents.
A4	Demonstrate knowledge and understanding of the environmental attributes of traditional and contemporary buildings.
A5	Formulate an informed position on wider issues and objectives of sustainability.
A6	Adopt a critical position in relation to parallel contemporary tendencies in architecture and urbanism.
B	**Subject Specific Skills and Attributes**
B1	Appraise and assess key technical and theoretical aspects of environmental sustainability in architecture and urban design.
B2	Plan, implement, process and interpret fieldwork involving observations, surveys and measurements using specialist instruments and data acquisition techniques.
B3	Apply appropriate specialised computational tools and performance assessment techniques to inform design decisions and assess the environmental impact and performance of buildings and urban spaces.
B4	Identify, compare and assess environmental attributes of buildings using on-site observations and measurements, as well as comparative performance data and calculated results.
B5	Assess the potential offered by new materials and technologies.
B6	Develop and test original design applications taking account of climate, site, and occupant comfort, health and wellbeing.
C	**Transferable Skills and Attributes**
C1	Applying appropriate analytical tools and evidence-based techniques to formulate and test research hypotheses.
C2	Collaborate in environmental research as a member of interdisciplinary international teams.
C3	Develop and test effective means of communication with clients and colleagues.
C4	Continue expanding their knowledge using the skills acquired on the course.

8.4 ASSESSMENT CRITERIA

All learning outcomes must be met in order to achieve a pass overall. The assessment of submitted work is based on the following overall assessment, The assessment of submitted work is detailed in each of the below sections of this Programme Guide. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Design:

Context and analysis
Demonstrating systematic understanding and critical awareness of relevant contextual factors. Application of methodology and analytical tools introduced by the taught programme to investigate specificities and variabilities of climate, urban morphology, vernacular and contemporary built precedents, and national and international regulations and standards, as these impinge upon the comfort and wellbeing of the intended user groups.

Process and synthesis
Undertaking research into specific contextual practices and issues demonstrating criticality, original thinking, independent learning skills and ability to work in a group. Generative and iterative application of computational tools to model and simulate site conditions, building form, construction and building occupancy, testing alternative design options, informing the design process with the results of the analysis.

Resolution and communication
Design proposals resolved to a satisfactory standard based on functional and aesthetic criteria and project targets set by the brief, assessed on comparative predictions of carbon emissions and occupant satisfaction. Evidence of well organised project work and effective collaborative procedures with research results and design proposals communicated effectively through a range of representational methods and visual, verbal and written skills.

Technology:

Context and analysis
Demonstrating a systematic understanding and critical awareness of relevant contextual factors. Engaging in data collection and processing aimed at characterising environmental conditions in and around buildings. Application of fieldwork methods and analytical tools introduced by the taught programme to investigate the environmental performance of buildings and outdoor urban spaces.

Approach and synthesis
Environmental knowledge acquired from the taught programme, published literature, field studies and analytical work synthesised into effective and original proposals demonstrating an informed approach toward regenerative design, independent learning and ability to work in a group, and the skills required for continuing professional and academic development.

Resolution and communication
The work demonstrates ability to analyse and refine technical concepts, communicating a critical understanding of the implications of design decisions at a range of scales over the lifecycle of the project. The project addresses the functional, programmatic and aesthetic requirements of the brief. The work is structured and organised effectively and communicated through advanced visual, verbal, and written communication techniques.

Professional Practice:

Knowledge acquirement
The work analyses and reflects upon developments and insights at the forefront of the profession of architecture. Relevant contextual information and/or precedents are critically evaluated in order to inform the parameters of an appropriately clear and complete representation of the subject matter.

Integration and synthesis
Demonstrates ability to work independently and in a group, integrating and synthesising contextual information and acquired knowledge through a systematic method, evidencing self-direction, originality and the ability to respond critically to the subject matter.

Clarity of communication
The work elucidates concepts, facts and opinions in an analytical manner, evidencing the ability to construct and maintain a critical position. The work is structured and organised effectively, demonstrating good use of written and visual communication skills and the independent learning ability required for continuing professional development.

8.5 CREDIT FRAMEWORK

Term	Course Title	Credits
1	Core Module 1 – Group Project 1: Building Studies	30
2	Core Module 2 – Group Project 2: Refurbishing the City Design Project	30
1	Core Module 3 – Research Paper 1	10
2	Core Module 4 – Research Paper 2 + Dissertation Outline	20
3, 4	Core Studio/Thesis – MArch Dissertation	90
1	Adaptive Architecturing	0 (Supporting programme content)
1	Design for Comfort, Health and Wellbeing	0 (Supporting programme content)
1, 2	Environmental Design Research Tools	0 (Supporting programme content)
1, 2	Low Carbon Studio	0 (Supporting programme content)
1, 2, 3	Research Seminar	0 (Supporting programme content)
2	Sustainable City	0 (Supporting programme content)
2, 3	Lessons from Practice (open to audit students)	0 (Supporting programme content)

8.6 TEACHING AND LEARNING METHODS

Weekly lectures, research seminars, software workshops, individual and group tutorials and daily study in the programme's studio provide the theoretical and empirical knowledge, methodology, analytical tools and guidance needed for undertaking real-life projects involving fieldwork as well as advanced computational studies and design research. SED projects are cross-course learning vehicles focused on the design, making, operation, performative assessment and potential improvement of new and existing built environments and microclimates, indoors and outdoors. In Term 1 the approach followed week by week is that of learning by doing. Three complementary lecture series are set in motion at the beginning of the term to provide the knowledge and tools needed each week for undertaking Team Project 1. In Terms 1 and 2, project work is in groups of 3-4 students that combine MSc and MArch students. Dissertation research is undertaken individually allowing students to contextualise their projects for the local climate and other specificities of their chosen geographic region and urban contexts.

Lecture Courses
In Term 1 the weekly taught programme provides the shared knowledge, skills and tools needed for project work and professional practice. Lectures address current issues and professional concerns thus providing a critical overview of the research directions pursued by the programme relative to the profession as a whole. Term 1 lectures are delivered by the programme's regular staff to ensure continuity and complementarity

providing direct support to student project work. In Terms 2 and 3 invited researchers and designers provide diversity of opinion, variety of input, and links with research and practice outside the programme. Lecture topics feed directly into each term's project agendas. Lectures are stored in electronic format and are available to students for further study.

Seminars and Workshops
The Research Seminar is a regular forum on research methods, information sources, essay writing and project documentation. It runs throughout the year. The Tools Workshop provides training in the use of a wide range of software tools. It is particularly intensive during Term 1 aiming to develop the empirical and analytical skills required for undertaking project work.

Projects
Term 1 and 2 projects are undertaken in teams of 3-4 students supported by weekly group tutorials and regular progress reviews. Projects are the vehicles for applying and integrating all the inputs of the taught programme. Each team project accounts for 30 credit units (some 300 study hours including attendance of related courses) awarded to each student. Technical studies undertaken as part of project work may involve fieldwork and/or analytical work that is shared between team members. Project support is in the form of weekly team tutorials and regular presentation of research results. Successful completion accounts for 10 credit units.

Research Papers
Research papers are expected to apply the knowledge and understanding gained from attending the taught programme to undertake critical review of published literature in selected topics of interest. They are undertaken individually supported by regular tutorials. Each research paper of 3,000 words accounts for 10 credit units. Research Paper 2, submitted at the beginning of Term 3, extends into preliminary studies to define the context, main topics and research questions of the dissertation for which it is assigned a further 10 credits.

Dissertation
The dissertation project is a significant piece of research that reflects the SED programme's areas of specialisation and students' backgrounds, personal interests, special skills and plans for the future. The Dissertation accounts for 90 credit units. Preliminary work in the form of a definition study is undertaken during Term 2 and an outline is included as an appendix to Research Paper 2. Dissertation topics are confirmed by the submission of written outlines aimed at providing evidence that the proposed topic is within the student's grasp and capabilities. Students researching related topics may choose to work together in pairs at early stages of the research. The MArch dissertation is concerned with an original design application that documents the potential of sustainable environmental design on a specific brief for a chosen context and site. Supervision of dissertation work is by weekly individual tutorials with assigned tutors; mid-term and end-term reviews with the programme's teaching staff and external reviewers. A list of completed MArch and MSc Dissertation Projects is included in the SED Programme Handbook. Printed and electronic copies are kept in the programme's archives.

Study Trips and Special Events
These include scheduled visits to buildings of interest, meetings with designers and researchers, participation in international conferences and joint workshops with students and staff from other institutions. Visit schedules vary from year to year; details are confirmed early in the year. Study trips take place during Term 2 or 3. Participation in trips involving travel abroad is optional; alternative arrangements are provided for students who are unable to travel abroad.

8.7 COURSES

TITLE	CORE MODULE 1 – GROUP PROJECT 1: BUILDING STUDIES		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Paula Cadima, Nick Baker, Gustavo Brunelli, Herman Calleja, Olivier Dambron, Mariam Kapsali, Byron Mardas, Mileni Pamfili, Pierluigi Turco, Divy Vora	Term	1
		Credits	30
Learning Methods	Empirical and analytical studies of the environmental attributes and performance of occupied buildings undertaken and submitted as group work; application of theoretical principles, fieldwork and specialist software introduced by the taught programme; collection and processing of building and outdoor data, group tutorials, project progress reviews, report writing and project documentation	Workload	300 hours study, inclusive of teaching contact: 148 hours teaching/152 hours self-directed study

Synopsis

Study of environmental performance and whole-life carbon analysis of selected buildings and outdoor urban spaces of architectural and environmental interest. The project is undertaken in teams of 3-4 students and makes use of all the inputs, tools and resources provided by the taught programme week by week in Term 1. The Project Brief is introduced at the beginning of Term 1 and work starts on the same day. The project combines fieldwork and computational studies providing unique insights on how buildings work in practice, the predictive potential of computer modelling and environmental simulation and the relationship between simulation and reality. Students get to learn first-hand from the experience of building occupants, managers and designers as well as from each other.

Aims

This project is a vehicle for developing specialist observational, experimental and analytical skills by studying environmental interactions in the built environment and the resulting effects on the comfort, health and wellbeing of inhabitants. The project is designed as a learning-by-doing exercise with student teams applying the inputs of the taught programme as delivered week by week. The project also offers experience of group work that is essential for practice in this field. The project tasks are typical of work the programme's graduates can expect to undertake in practice. In the last fifteen years over one hundred buildings have been studied for this project and some of these building studies have been published.

Content

- Review of published literature on buildings selected as case studies.
- On-site observations and environmental measurements (spot measurements and hourly datalogger readings over 7-10 consecutive days).
- Interviews with designers, occupants and building management staff.
- Processing and interpretation of fieldwork.
- Planning of computational studies based on fieldwork findings and course inputs on building modelling, material specifications and operational conditions.
- Computational simulations of environmental conditions in selected spaces indoors and outdoors investigating occupant comfort and energy use.

- Exploration of possible improvements to occupant comfort and wellbeing under varying occupancy and climate change scenarios.

Learning Outcomes

On completion of this project students can be expected to be able to:

- Undertake field studies involving building surveys, occupant interviews and environmental measurements.
- Carry out critical appraisals of the environmental attributes of buildings and outdoor spaces using on-site observations as well as analytical studies based on simulation.
- Formulate proposals for environmental improvements to existing buildings and outdoor spaces accounting for specificities of site, local climate, urban morphology, building type, construction and occupancy.

Submission

- Project Report

Assessment Methods

Weekly formative assessments in regular group tutorials; mid-term and end-term project presentations reviews. Summative assessments and grading of submitted project reports by two internal assessors.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Demonstration of knowledge and understanding of relevant theoretical principles, empirical data, research methods and computational tools introduced by the taught programme.
- Planning and execution of field studies and analytical work to investigate specificities and variabilities of climate, urban morphology, vernacular and contemporary precedents and national and international regulations and standards.

Process and synthesis

- Demonstration of innovative thinking and creativity.
- Clarity and transparency in structure, writing and visual presentation of project results.

Resolution and communication

- Referencing of sources of information using agreed conventions.

TITLE	CORE MODULE 2 – GROUP PROJECT 2: REFURBISHING THE CITY DESIGN PROJECT		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Paula Cadima, Gustavo Brunelli, Herman Calleja, Olivier Dambron, Mariam Kapsali, Byron Mardas, Mileni Pamfili, Pierluigi Turco, Divy Vora	Term	2
		Credits	30
Learning Methods	Lectures, site studies, predesign and design development studies using simulation tools; developing design briefs; design research and proposals working as member of project team; group tutorials, progress presentations, project documentation and report writing	Workload	300 hours study, inclusive of teaching contact: 137 hours teaching/ 163 hours self-directed study

Synopsis

The findings of the building case studies undertaken in Term 1 provide starting points for design research on a London site. This design project provides a vehicle for exploring visions of sustainable living environments following the methodology and tools introduced by the taught programme. The Project Brief is introduced at the beginning of Term 2. Work on this project accounts for 30 credit units for each student. It is undertaken in teams of 3-4 students with each team developing its own design brief and research agenda.

Aims

To apply the knowledge and tools provided by the taught programme to the development of design proposals for a specific building programme, climate and site.

Content

- Predesign research leading to formulation of team design briefs and research agendas.
- Climate and site microclimate studies.
- Review of relevant vernacular and contemporary precedents.
- Environmental simulation studies to investigate performative potential.
- Design development and final proposals.
- Comparative assessment of design proposals against industry standards and benchmarks.

Learning Outcomes

On completion of this project students can be expected to be able to:

- Develop designs for new environments and reuse of existing buildings based on specificities of climate, site, building type and occupancy, exploring potential for zero carbon applications.
- Draw lessons and research questions from historical and contemporary building precedents.
- Use appropriate performance assessment and design research tools as and where needed to inform design decisions and assess the environmental impact of proposed designs.

Submission

- Project Report

Assessment Methods

Weekly formative assessments in regular group tutorials; mid-term and end-term project presentations reviews. Summative assessments and grading of submitted project reports by two internal assessors.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Evidence of learning from contextual studies and built precedents.
- Transparent methodology to formulate and investigate design ideas and research hypotheses.

Process and synthesis

- Demonstration of innovative thinking and creativity in design research.
- Effective application of knowledge and analytical tools introduced by the taught programme.
- Capacity for comparative analysis and interpretation of analytical studies.

Resolution and communication

- Adherence to project briefs.
- Clear structure, writing and presentation of project reports.
- individual student experiences and contributions to the team effort.

TITLE	CORE MODULES 3 AND 4 – RESEARCH PAPERS 1 AND 2 + DISSERTATION OUTLINE		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Nick Baker, Paula Cadima, Olivier Dambron, Mariam Kapsali, Mileni Pamfili	Terms	1 and 2
Learning Methods	Seminar attendance, oral presentation of work in progress, literature research, essay writing, individual tutorials	Credits	30 • 10 Term 1 • 20 Term 2
		Workload	300 hours study, inclusive of teaching contact: 52 hours teaching/248 hours self-directed study

Synopsis

Research Papers are critical reviews of published literature, written individually on selected topics. They account for 10 credits based on submission of written essays of 3,000 words. Term 2 Research Paper 2 is expected to extend into a definition study for the dissertation. The definition study is assigned an additional 20 credits. Over the year the Research Seminar is a regular forum supporting the development of writing skills and engagement with the relevant literature.

Aims

Critical review of bibliographical material on selected topics. Practice of technical academic writing and referencing. Support for dissertation development.

Content

- Literature research for relevant information and data on topics of interest.
- Critical group discussions of selected topics.
- Individual tutorials on potential topics and research methods for Research Papers and Dissertation.
- Introduction to technical writing and referencing.

Learning Outcomes

On completion of these assignments students can be expected to:

- Have acquired familiarity with the programme's essential published literature and key topics.
- Have sharpened their knowledge and understanding of sustainable design in architecture and urbanism.
- Have improved their oral and written reporting of research.

Submission

- Research Paper 1 (3,000 words)
- Research Paper 2 + Dissertation Outline

Assessment Methods

Formative assessment in regular individual tutorials. Summative assessments and grading of submitted papers by two internal assessors.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Understanding of critical environmental issues facing the profession.
- Formulation of research questions based on readings of relevant literature and findings of team projects.

Process and synthesis

- Ability to work independently demonstrating good judgment in selection and treatment of research material.

Resolution and communication

- Clear and concise writing and presentation of research results.

TITLE	CORE STUDIO/THESIS – MArch DISSERTATION		
Level	FHEQ Level 7	Status	Compulsory
Teaching Staff	Paula Cadima, Olivier Dambron, Mariam Kapsali, Mileni Pamfili, Pierluigi Turco	Terms	3 and 4
		Credits	90
Learning Methods	Seminar attendance, oral presentation of work in progress, literature research, essay writing, individual tutorials	Workload	900 hours study, inclusive of teaching contact: 57 hours teaching/843 hours self-directed study

Synopsis

The Dissertation Project is meant as a significant piece of research that reflects the SED programme's areas of interest and students' backgrounds, personal interests, special skills and plans for the future. It integrates all the inputs of the taught programme providing the opportunity for in-depth exploration of climatic conditions, urban morphologies, contemporary and vernacular building precedents, and specific issues relating to the chosen topic. Work on the Dissertation is undertaken individually and accounts for 90 credits. Its context and specific topics evolve in parallel to Research Paper 2 with support from the Research Seminar and weekly individual tutorials throughout Terms 3 and 4.

Aims

The MArch dissertation project aims to demonstrate highlights offering students the opportunity to complete the course by undertaking a rigorous research project that informs design proposals application, the results of which provide detailed evidence of likely environmental improvements compared to current practice.

Content

- State-of-the-art review of selected research topics relating to selected climatic region, urban context and building type.
- Contextual studies including climate analysis, traditional and contemporary built precedents.
- Field studies (if any).
- Analytical work aimed at mapping potential applicability and performative attributes of different design strategies.
- Urban and building design guidelines for chosen climatic region and building type aimed at informing design decisions.

Learning Outcomes

On completion of the dissertation project students can be expected to be able to:

- Assess the environmental attributes of buildings and outdoor spaces as relating to occupant comfort, health and wellbeing.
- Use specialist computational simulation tools to inform design decisions and/or assess environmental impact and performance of buildings and urban areas.
- Develop architectural design proposals and design applicability studies for new and existing buildings taking account of specificities of climate, site, building type and occupancy.
- Assess the potential offered by new materials and renewable energy technologies.
- Plan, document, illustrate and interpret research results encompassing fieldwork, analytical studies and design proposals.

Submission

- Dissertation (12,000 words)

Assessment Methods

Formative assessments based on individual tutorials throughout Terms 3 and 4 and mid-term and end-term public presentations and reviews. Summative assessments of completed Dissertations by two internal assessors combined into agreed grading.

Assessment Criteria

All learning outcomes must be met in order to achieve a pass overall. Students are required to demonstrate knowledge, understanding, ability and skills in the following areas:

Context and analysis

- Knowledge and understanding of the theoretical principles, research methods and analytical tools introduced by the taught programme.

Process and synthesis

- Application of critical faculties and observational skills.
- Ability to use fieldwork and analytical studies to test research hypotheses and find new data.
- Application of new knowledge and tools in design research and practice.
- Demonstration of innovative thinking and creativity.

Resolution and communication

- Responsible application of technical knowledge and analytical tools.
- Clear, concise writing and strong visual presentation of project aims and outcomes.
- Referencing of sources of information using agreed conventions.