

# Design + Make

MArch/MSc STUDENT HANDBOOK 2016

Architectural Association School of Architecture







The Architectural Association's satellite campus out in Hooke Park, Dorset is a laboratory for Architectural Research through 1:1 fabrication. Students inhabit an environment that combines, forest, studio, workshop and building site. Developing hands-on research in design and fabrication through prototyping. The large-scale fabrication facilities act as a testing ground where students devote time to advanced speculative research.

The MSc and MArch Design + Make programmes are twelve and sixteen month residential programmes respectively. Designing and building Architecture in the woods, within an ecosystem that is both material library and site and which forms the inspiration for architectural experimentation. By combining traditional craft with advanced technologies such as 3D scanning and robotic fabrication, Design + Make operates as an agency of architectural innovation and presents a unique and alternative vision for architectural education.

[designandmake.aaschool.ac.uk](http://designandmake.aaschool.ac.uk)

[hookepark.aaschool.ac.uk](http://hookepark.aaschool.ac.uk)

[aaschool.ac.uk](http://aaschool.ac.uk)



[1] Programme Specification	01
[2] Introduction	08
[3] Teaching and Learning Strategies	09
[4] Assessment strategies	11
[5] Module Specifications: Seminars	13
[6] Module Specifications: Studios	21
[7] Resources	28
[8] Staff CVs	31





# [1] PROGRAMME SPECIFICATION

## Overview

Programme Award & Title:	MSc Design + Make (Timber Technologies) // MArch Design + Make
Teaching Institution:	Architectural Association School of Architecture
Awarding Institution:	OU Open University*
Date of Latest Revalidation:	May 2015
Programme start date:	September 2010
Credit Points:	180
Criteria for admission:	MArch: Five-year professional architecture degree. MSc: Three-year degree in architecture, engineering or related subject
Mode & duration of study:	Full time, 12 months (MSc) 16 months (MArch)

*\*The AA is an Approved Institution and Affiliated Research Centre of The Open University (OU), UK. All taught graduate degrees at the AA are validated by the OU. The OU is the awarding body for research degrees at the AA.*

## Educational Aims and Objectives

Design + Make is an advanced study Masters programme in which the core educational aim is to develop advanced critical capacity in the intellectual and material processes of contemporary architecture. This global aim can be divided in two fields: firstly, the accumulation of disciplinary knowledge in the specific theories and practices of architecture that relate to its making, and secondly the development of advanced skills in design, research, analysis, and their communication. The programme explicitly aims to maximise the learning opportunities presented by the *realisation* of design intent.

The **MArch** students use actual building projects at Hooke Park as their vehicle for design research. By formulating individual research interests within a group project each student pursues the objective of developing and testing a specialist aspect of architecture and critically reflecting on this in their individual thesis. Ultimately, propositional arguments are made through the documentation of the built project and through the thesis.

The **MSc** students have a more explicit technological focus on the innovative application of timber in architecture, which is developed and tested through full-scale system prototypes using new fabrication technologies. The educational objective is to engender in the student the knowledge and skills to carry out independent research that incorporates physical prototyping as part of its evidence. The experimentation, analysis, critique and technological proposition are presented in an individual dissertation.

## Programme Outcomes

### A: Knowledge and understanding

On completion of MSc/MArch Design + Make, students should be able to:

- [A1] Demonstrate systematic knowledge of the historical and theoretical bases of design-build approaches to architecture.
- [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] Understand advanced technologies and processes of fabrication and construction and their procurement.
- [A6] Understand the current issues relating to rural architectures, including environmental and societal concerns, in UK and global contexts.

## **B: Subject specific skills and attributes**

On completion of MSc/MArch Design + Make, students should be able to:

- [B1] Conceive, produce, represent and articulate a comprehensive architectural design proposal.
- [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] Document a complex design 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] [MSc] Conduct independent research that incorporates physical prototyping as part of its evidence.
- [B6] [MArch] Develop propositional arguments through documentation and analysis of a built project.

## **C: Transferable skills attributes**



On completion of MSc/MArch Design + Make, students should be able to:

- [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.

# Curriculum Map

The Curriculum Map below shows how outcomes are deployed across the study programme. It indicates which units of the course are responsible for delivering (shaded) and assessing (X) the particular programme learning outcomes.

	A: Knowledge and Understanding					B: Subject Specific Skills/Attributes						C: Transferable skills attributes					
	Historical and theoretical bases of design-build	Advanced design techniques	Knowledge of timber properties and production	Innovative uses of timber in construction	Processes of construction and its procurement	Issues relating to rural architectures	Architectural Design Proposal	Research construction technologies	Synthesise to provide innovative design approaches	Document design for fabrication and construction	Skill competency in fabrication and construction	[MSC] Conduct research incorporating physical prototyping	[MArch] Develop propositional arguments from built project	Critical and Technical analysis	Communicate effectively	Formulation of hypotheses and arguments	Continue expanding knowledge
<b>Seminar Courses</b>																	
Making as Design																	
Timber Technologies																	
Making and Praxis																	
Dissertation/Thesis Development																	
<b>Studios</b>																	
Induction Studio																	
Core Studio																	
Main Project - Design																	
Main Project - Making																	
<b>MSc Final Submissions</b>																	
Dissertation																	
<b>MArch Final Submissions</b>																	
Project Report																	
Thesis																	

-  = Components in which outcomes are delivered
-  = Components in which outcomes are assessed

## Programme Structure

### Overview /Programme Requirements

Students are given one credit for each 10 hours spent on the programme: the time spent on lectures, seminars, workshops and tutorials; non-contact activities such as design projects, course reading, essays and thesis; and 'make' activities such as fabrication and construction. A total of 180 credits (1800 hours) are required for completion of both the MSc and MArch programme.

Over the programme as a whole, the proportion of contact hours (teaching and tutorial time) and individual work is approximately 25% and 75% respectively.

The contact activities and hours are consistent for the MArch and MSc for the first three terms. At the end of term 3 the programme bifurcates and the contact periods differ for the fourth term for each programme:

For the MSc students, term 4 occurs during the summer (July, August, September) and academic contact continues through this period with tutorials to support the Dissertation. Hooke Park closes to students for two weeks in late August.

For the MArch students this period (July, August, September) is the summer academic break and there is no academic contact in this phase. However, construction work continues on the building site through this period. During this time, MArch students are required to spend at least four weeks engaged in construction. For the MArch students, term 4 occurs during the autumn (October, November, December) and academic contact continues through this period with tutorials to support the Thesis and Project Documentation. The final submission is made at the end of January.

## Structure

The Design + Make programmes are structured around a series of hands-on design-make studio projects of increasing scale and sophistication leading to the student construction of either a campus building (MArch students) or full-scale timber prototype (MSc students). These are complemented by the seminar courses and workshops in forestry, woodworking and both traditional and contemporary building crafts, and by lectures and events at Hooke Park and at the AA in London. The teaching team consists of architect and engineer tutors, construction experts, and the support of world-leading consultants who provide technical guidance for the projects.

The MSc and MArch share the taught components of the first three terms. After the third term, the programme bifurcates, with the MSc students completing their dissertations for submission in September, whilst the MArch students continue with project construction through the summer and then thesis completion (term 4) for submission the following January. The thesis draws on the constructed project as evidence towards a propositional argument concerning the practice and realisation of architecture.

The Design Studios consists of Induction Studio and Core Studio in the first term, and the Main Project Studio in second term in which the prototype/building to be constructed is designed and documented. The Induction Project provides an intensive introduction to the programme's key design methodologies; the Core Project is dedicated to design-build explorations through which design and construction techniques are established. Design approaches and skills developed in the first term are applied in subsequent terms in the collective design of the Main Projects (MArch) and the individual design of a Prototype in timber (MSc).

The Seminar Courses complement these with their respective focus on the cultural theory of making as design; timber properties and technologies; rural agendas; and visiting lectures on making and praxis. Together they provide a theoretical foundation of the programme, and introduce the various fields of knowledge relevant to the design of experimental prototype buildings.

The Make Studio consists of the fabrication and construction work of the prototype (MSc) / built project (MArch). Its processes and built output are determined by the specific brief for the Main Project, and are assessed on completion of the prototype / built project. Learning is acquired experientially through collaboration with the project's tutors, engineers, contractors and trades-people.

The Dissertation (MSc) / Thesis (MArch) is started in the third term with a series of classes in thesis production. It is submitted at the end of the programme.

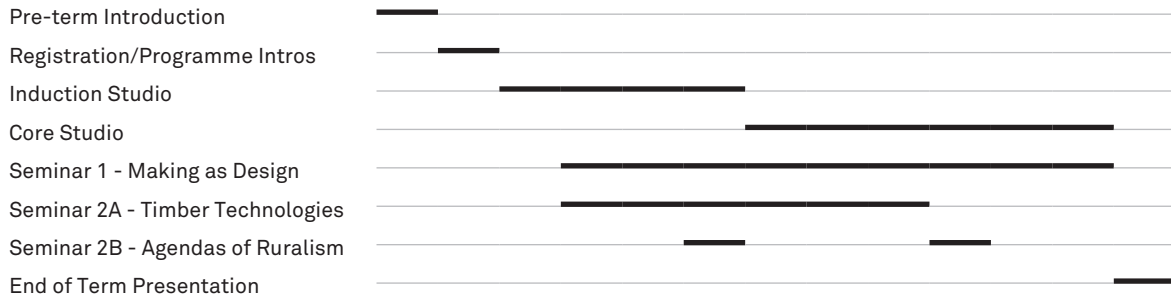
These components are supplemented by non-assessed workshops in forestry, woodworking and traditional building crafts, and by evening lectures and events at Hooke Park and London.

The table below summarises this structure and the assessment distribution for the two programmes:

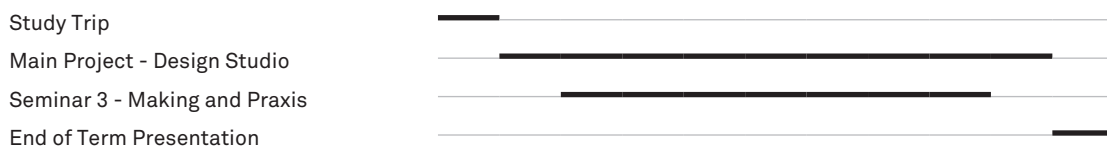
			Credits	Study Hours	% of Award				
Phase 1	Term 1								
	Studio 1	Induction Studio	Individual Dossier	15	150	8%			
	Studio 2	Core Studio	Group Dossier	20	200	11%			
	Seminar 1	Making as Design	3,000 word Essay	10	100	5.5%			
	Seminar 2	Timber Technologies / Agendas of Ruralism	1,500 word Essay	5	50	3%			
	Term 2								
	Studio 3	Main Project – Design Studio	Individual Dossier	30	300	17%			
Seminar 3	Making and Praxis	3,000 word Essay	10	100	5.5%				
Phase 2	Term 3								
	Studio 4	Main Project – Make Studio	Prototype (MSc) / Build- ing (MArch)	30	300	17%			
	Term 4								
	MSc Final Submission (September 2016)	Dissertation	Individual Dissertation (12000 words)	60	-	600	-	33%	-
	MArch Final Submissions (January 2017)	Main Project – Report	Group Dossier	-	20	-	200	-	11%
Thesis		Individual Thesis (8000 words)	-	40	-	400	-	22%	
Total			180	1800	100%				

# Calendar

## TERM 1 (Oct - Dec) 0 1 2 3 4 5 6 7 8 9 10 11 12



## TERM 2 (Jan - Mar) 1 2 3 4 5 6 7 8 9 10 11



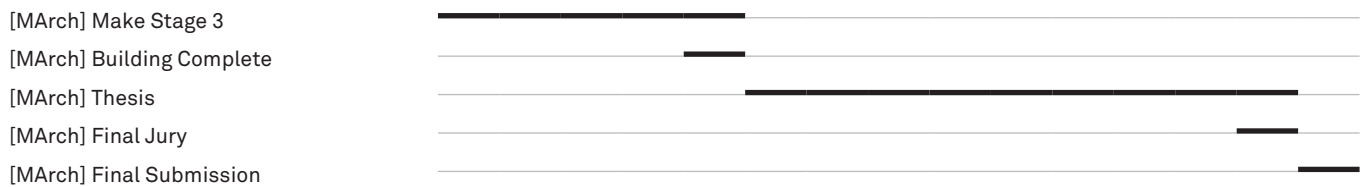
## TERM 3 (Apr - Jun) 1 2 3 4 5 6 7 8 9



## SUMMER / MSc TERM 4 (July - Sept) 1 2 3 4 5 6 7 8 9 10 11 12



## TERM 4 (Oct - Jan) 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15



# Staff list

## Academic Staff

Name	Role	Availability	Contact
Martin Self	Programme Director	2.5 days/week	martin.self@aschool.ac.uk
Emmanuel Vercruysse	Programme Director	3 days/week	vercruysse@aschool.ac.uk
Zachary Mollica	Course Tutor	2 days/week	zachary.mollica@aschool.ac.uk
Charley Brentnall	Make Tutor	1 day/week	charley.brentnall@cowco.biz
Mark Campbell	Thesis Tutor	0.5 days/week	mark.campbell@aschool.ac.uk

## AA Hooke Park Staff

Name	Role	Availability	Contact
Laura Kaddey	Hooke Park Administrator + Academic Coordinator	3 days/week	laura.kaddey@aschool.ac.uk
Martin Self	Hooke Park Director	2.5 days/week	martin.self@aschool.ac.uk
Jeremy Ralph	Hooke Park Manager	3 days/week	jeremy.ralph@aschool.ac.uk
Charlie Corry Wright	Workshop Manager + Caretaker	5 days/week	charlie@aschool.ac.uk
Edward Coe	Technical Coordinator	4 days/week	edward.coe@aschool.ac.uk
Christopher Sadd	Forester	2 days/week	christopher.sadd@aschool.ac.uk
Georgie Corry Wright	Catering		georgie@aschool.ac.uk

## AA London Staff

Name	Role	Availability	Contact
Clement Chung	Graduate School Academic Coordinator	Full time	clement@aschool.ac.uk
Belinda Flaherty	AA Registrar	Full time	belinda@aschool.ac.uk
Jorge Fiori	Head of Graduate School Management Committee	Full time	fiori@aschool.ac.uk

## [2] INTRODUCTION

### Programme Background

AA Design + Make is a full-time 12-month (MSc) / 16-month (MArch) graduate design programme, located at the AA's Hooke Park forest estate in Dorset, south-west England. Founded in 2010 with the commencement of the MArch programme, AA D+M is open to post-graduate students of architecture and related disciplines who wish to pursue studio and workshop based design and realisation of alternative rural architectures using innovative material and fabrication technologies. On a yearly cycle, the programme designs, prototypes and constructs experimental buildings at Hooke Park, in the process creating a new rural AA campus as a demonstrator of ecologically sustainable design. The new MSc variant of the programme is starting in 2015.

The core belief of the programme is that students and architects learn best through the imagination, development and realisation of full-scale prototype structures, through which ideas for the future are conceived, tested, documented and communicated. The course is thus based in the philosophy that through actual engagement in making and building, the student has a unique opportunity to develop a rich phenomenal understanding of architecture. Similarly, through realising real-world sustainable solutions within the environmental context provided by Hooke Park, a deep individual appreciation of ecological issues can be gained.

The programme is uniquely placed to benefit from exposure to the AA's design culture, the workshops and working forestry of Hooke Park, and the expertise of a body of consultants and advisors engaged at the leading edge of design thinking. Students and staff live within the community surrounding Hooke Park. Ideas are shared through engagement within that community, with visiting students and tutors to Hooke, and, during visits to London, the wider school community. The aim is that the student intake will produce compelling local responses (in terms of both discourse and artefact) to the global challenges facing architecture.

### Programme Agenda: Advanced Materialisation

The core agenda of Design + Make is to advance the materialisation of architecture through the synthesis of advanced technologies, craft techniques, and deep understanding of natural material. The key proposition is that new digital design and fabrication technologies enable traditional making techniques to be re-invented as innovative and appropriate processes for architecture. Emerging tools such as digital 3-d scanning, generative modeling and robotic fabrication provide new opportunities for replicating the feedback between natural geometry, material properties and designed form that had previously connected designer, maker and the artefact. The argument is that architecture is best pursued when these connections are intact, and that the timber and computation contexts of Hooke Park provide rich ground to explore their reconciliation.

### Programme Premise: Learning by Making

Design + Make aims toward the reconciliation of designing and making in architecture. It is a response to the premise that architects have become increasingly separated from the act of making, despite the need to understand and control the material production of their buildings. As the architectural profession developed, its training became formalised and intellectually abstracted from the building site (the site that had, previously, been the master-builder's hands-on learning environment). Without the real-world anchor of construction, architectural education has had to find other mechanisms for imparting the knowledge and intuition that hands-on material engagement provides.

These mechanisms – the material experimentation, model-making and prototyping that goes on in architecture schools – have become very rich (especially with new prototyping technologies) and are fundamental to the development of the student architect. Design + Make aims to extend that development by providing, at post-graduate level, the experience of actual construction: exposure to the scale and mass of full-scale prototyping and building and the implications of a real site and environmental context. It proposes that design relies on intuitive understandings of the physical world that can only be developed through tactile engagement within it. This philosophy of 'learning by making' runs through the programme. All design works, including the first-term studio projects, are tested through physical realisation. Students are encouraged to use the adjacent wood-working workshop, and the surrounding woodland, to prototype and analyse ideas at any point as they design.



# [3] TEACHING AND LEARNING STRATEGIES

## Seminar Courses

The three assessed Seminar Courses each consists of weekly two-hour sessions, each typically consisting of a seminar presentation by the Seminar Tutor or invited Lecturer, followed by questions and discussions with students. A fourth, non-assessed Course, consists of five sessions and is focused on the development of the Dissertation / Thesis. Active participation by students in the seminars is a requirement of the Courses. Students are given a reading list at the beginning of each Course, which defines the specific set readings and provides a more general bibliography of background and further reading. Students are required to read this set preparatory or follow-up material, and to make group or individual presentations at the seminars.

The Seminar Tutors give tutorials to aid students in choosing their essay topics and focusing and developing their research and essay submissions. An abstract of the proposed essay will be required from each student before the end of each seminar series, to ensure that an essay argument has been identified. The content, learning outcomes and assessment requirements of each Seminar Course is defined in section 5. Assessment of each course is by written illustrated essay submitted at the beginning of the following term.

## Studios

The Design and Make Studios run throughout Phase 1 (terms 1, 2 & 3) and consists of the Induction, Core, and Main Projects.

Whilst each Studio has different mechanisms and objectives as defined in section 6 the general teaching strategies are common. Each Design Studio is led by the Studio Tutors with support from studio assistants, mentors from practice, consultants and other invited lecturers, critics and jurors. These regular staff and invited lecturers give formal design tuition through lectures, workshops, individual tutorial contact and group design sessions. Typically, this formal teaching occurs during weekly or twice-weekly studio sessions at Hooke Park. In addition to this, informal contact with the Workshop Technician, and other full-time Hooke Park staff is available on a weekday daily basis.

Student studio work is centred in the Design + Make studio space 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 in Hooke Park or in London. Generally, each Project will end with a Final Jury presentation in London. Assessment for each Project is through submission of a Design Dossier, which is a bound portfolio-based document of the design-work, with a written and illustrated description and critique of its processes and output. The specific submission requirements are given in the Course Syllabi.

The Make Studio covers the construction phase of the prototype (MSc) / building (MArch) project. MSc students work individually on the fabrication and construction of their prototype piece, whereas MArch students work in teams of typically 3-6 students and. Students, depending on the nature of the brief, engage in the processes of specification, procurement, fabrication, assembly, erection, enveloping/facade, fit-out, and finishing. Roles within the team are defined to divide the workshop and site-based work, and the responsibilities of project management, cost-control, procurement, building regulations etc. Workshop activity is coordinated by the Workshop Technician (Charlie Corry Wright), and guided by the programme staff, including the Make Tutor (Charley Brentnall) who is specialises in timber fabrication and construction.

Site activity for the MArch students begins after the Easter break, with the mobilisation of the project's site as a managed and regulated building site, with the relevant CDM and other health & safety regulations observed. Depending on the nature of the building project, professional contractors and trades-people are engaged where necessary to supplement the skills and capabilities of the students.

The key aims of the Make activities are:

- To maximise the opportunities for **full-scale on-site making to inform architectural design**. By testing design propositions through actual constructions in the real-world, students develop

design methodologies in which architectural form is generated in response to the conditions and phenomena presented by the real-world site.

- To develop an advanced **understanding of the physical behaviour of the systems of architecture**, in terms of material, structural and environmental (thermal, light, acoustic) performance, through the direct experience of actual behaviour in the real world.
- To develop advanced **knowledge and skills in the processes of fabrication and construction** that can be used to inform design practice.

## Dissertation/Thesis

The individual Dissertation / Thesis is produced during Phase 2. A series of seminar classes is held in Term 3 to support students in the development and production of the Dissertation / Thesis (see section 5.4).

MSc students produce their 12,000 word Dissertation during the summer (MSc Term 4) following completion of the prototype construction, for submission at the end of the 12-month programme. The purpose of the Dissertation is to present original research in the application of timber design and fabrication technologies in structural, envelope or other architectural applications. The Dissertation documents the student's literature and case-study research of precedents; critical analysis of the design, development, making and testing of their Prototype; and assessment of the future applicability within the architecture and the building industry.

MArch students produce their 8000-word individual Thesis for submission at the end of the 16-month programme. It forms an analysis and critique of the processes and outcome of the design and production of the Hooke Park build project, and develops a propositional argument concerning the theory or practice of architectural design within a design-build context. Each MArch student identifies an individual field of research by the end of Term 1. This is then used to help inform and frame the choice of design and hands-on activities in the subsequent terms within the team-based work. Thesis Presentations are held in the fourth term, following completion of the built project. At this event, each student presents their thesis argument to an invited jury who advise on its subsequent completion for hand-in in late January.

## Non-Assessed Workshops

In addition to the assessed seminars and studios, various non-assessed workshops, talks, evening lectures, visits and other events are held during the programme orientate students in relevant activities and practices. These will include:

### Introduction weekend

Over the first weekend of Term 1, a visit to Hooke Park will introduce students to the staff, the workshop, Hooke Park itself, and the surrounding countryside.

### Forestry orientation

Instructor: Chris Sadd, Hooke Park Head Forester

This consists of a woodland walk and provides an introduction to the silviculture of Hooke Park. The history and make-up of the woodland in terms of its species and landscape is presented through a tour of the woods. The economic, ecological and legislative factors that determine the forestry management strategy are explained, and the potentials for using the woodland as a source of building material presented. The issues that determine the material properties of timber and the processes required to turn a tree into useful product are explained.

### Boat Building Introduction

In term 1, a three day course is hosted at the Lyme Regis Boat Building Academy that introduces the principles and processes of boat design and building. The course consists of classroom sessions that present the various traditional boat construction techniques in wood, and workshop-floor discussions based around boats that are nearing completion by students of the Academy.

## [4] ASSESSMENT STRATEGIES

### Assessment mechanisms

Students are assessed on submitted essays, design dossiers, the final dissertation/thesis and an assessment of the constructed prototype / building.

Submissions are made to the Hooke Park Academic Coordinator on the stated submission date. Submissions are to consist of:

- Two copies of the physical document (these form the basis of the assessment)
- A PDF (max size 10MB) emailed to hookeadmin@aaschool.ac.uk

Late submissions are penalised in line with AA Graduate School policy, with a cap to the awarded grade of 70%. Mitigating circumstances for late submissions are considered as detailed in the AA Student Handbook.

All assessments are double marked, with written commentary and grades, and each student receives both written feedback and discussion on their assessment in individual tutorials.

External Examiners will have access to all Design + Make Theses, a representative sample of the design dossiers and seminar course essays, and will visit the built projects, prior to the formal meeting of the Examination Board. The Examination Board will be composed of the Programme Director, staff, and the External Examiners, assisted by the Administrative Coordinators of Hooke Park and the Graduate School. The Examination Board has the responsibility for the final marking of all submitted work, and makes decisions on distinctions and resubmission. The Board and its External Examiners report to the AA Graduate Management Committee, which in turn reports to the Open University, the validating institution for the AA Graduate School's Master Programme. Notification of results is given to students by the Registrar's Office through the Graduate School Coordinator.

### Assessment Criteria and Grading

The assessment of submitted work is based on the following overall assessment criteria (which are based on the Level 7 Descriptor of the QAA's Master's Degree Characteristics, March 2010) in addition to specific ones given for each module. The MSc/MArch Design + Make degree is awarded to students who have demonstrated:

- A mastery of a complex and specialised area of knowledge, and a critical awareness of issues at the forefront of the study of architecture, its professional practice and technical systems.
- A comprehensive understanding of techniques applicable to their own research or advanced scholarship.
- Originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline
- Conceptual understanding that enables the student:
  - To evaluate critically current research, advanced scholarship and professional practice in the discipline of architecture and its technologies
  - To evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses.

The marking of all course work is on a scale of 0-100% with a pass mark of 50% and grading as shown below. The grades are given on the basis of the general assessment criteria above and the relevant syllabus for each module.

70 +	= [A] Excellent Pass / Distinction
65-69	= [B+] High Pass
60-64	= [B] Good Pass
57-59	= [C+] Satisfactory Pass
54-56	= [C] Adequate Pass
50-53	= [D] Low Pass
- 49	= Fail

All coursework is marked by two internal assessors. Their marks are averaged to establish a moderated mark for each graded submission. Where the result of the assessment calculation creates a mark of 0.5% or greater, this will be rounded up to the next full percentage point (e.g. 69.5% is rounded to 70). Where the calculation creates a mark below 0.5% this will be rounded down to the next full percentage point (e.g. 69.4% is rounded to 69%). For the purposes of rounding up or down, only the first decimal place is used.

To qualify for the MSc / MArch degree the student must achieve 50% or higher mark on each of:

- Coursework average in Phase 1
- The project assessment in Phase 2
- The individual Dissertation / Thesis.

Students must pass the assessment criteria of Phase 1 to enter Phase 2. Students who fail to achieve a pass mark on any single Seminar course work or Studio in Phase 1 must resubmit (once) and pass before being allowed to proceed to Phase 2. Students who fail to achieve a pass mark in Phase 2 may resubmit once for the Examination Board of the following academic year. The MSc / MArch will be awarded with distinction when the overall final mark is 70% or higher. All grades achieved by students will be kept on record in the AA Graduate School's database, and are available for transcripts, but will not appear on the certificates.

## **Assessment Mechanisms and Criteria for Constructed Prototypes/Buildings**

The Make Studio output is assessed through direct examiner judgment of the Prototype (MSc) / building (MArch). This assessment of the is made in consultation with the External Examiner(s) and is judged with respect to benchmark projects built as the output of comparable design-build courses. The key criterion is for legible manifestation of the ambitions of the Design + Make students' research and design agenda. This agenda is to include the integration of making within design.

### **Criteria for Prototype and Building Assessment**

The criteria for the assessment of the construction prototype / project are listed below. As part of the assessment procedure, the D+M assessing tutors write an assessment citation that judges the project with respect to each of these items.

#### **Criteria for both MArch and MSc:**

- Evidence of invention and innovation
- Demonstration of the opportunities of a design approach that integrates design and making
- Evidence of solutions informed by material and structural experimentation at full-scale
- Evidence of successful, inventive, and appropriate use of building materials
- Evidence of successful, inventive, and appropriate use of the workshop facilities and the other resources of Hooke Park
- Evidence of the development and application of practical workshop and building-site skills
- Evidence of successful management of the fabrication and construction process in achieving design intent

#### **MSc-specific criteria:**

- Technical performance with respect to the student's stated research aim for the prototype
- Performance in design terms as a demonstrator of the architectural applicability of the prototype system
- Value as a prototype in testing and proving its applicability in wider UK/global context

#### **MArch-specific criteria**

- Architectural performance with respect to the client's brief for the project
- Evidence of a 'sense of place' and site-responsive formal/environmental solutions
- Evidence of successful collaboration, in terms of both design and production, between students.

# [5] MODULE SPECIFICATIONS: SEMINARS

## Seminar Course 1 Making As Design

### Summary

Module Title:	Making as Design
Tutors:	Martin Self, Emmanuel Vercruysse
Credits:	10 credits (5.5% of award; 100 notional learning hours)
Format:	Weekly seminar sessions
Submission:	3,000 word essay
Calendar:	Term 1, weeks 3-10

### Course description and aims

This seminar series explores the histories, theories, and cultures of architectural design philosophies that prioritise making. It is intended to equip students with an understanding of the discourse that argues that interaction with the real-world artefact is fundamental to design. Each session explores instrumental uses of making, building up a typology of mechanisms through which making is used and theorised in architectural design.

Underlying the course is the recognition that, conventionally, the architect is disengaged from actual building (their professional output being limited to provision of production information), but that design relies on intuitive understandings of the physical world that can only be developed through tactile engagement within it. The course explores the various mechanisms of this development, achieved in making by the situated and concrete material engagement of the designer.

### Learning outcomes

On completion of the Seminar Course students are expected to:

- [A1] Demonstrate systematic knowledge of the historical and theoretical bases of design-build approaches to architecture.
- [A2] Demonstrate critical awareness of advanced digital design techniques, the realms of their application, and their relative merits when integrating design and production.
- [C2] Communicate effectively with a wide range of individuals visually, orally and in writing
- [C3] Formulate clear and appropriate hypotheses and arguments

### Indicative content

#### [Session 1] Introduction

An introduction to the seminar course, the categories of architectural making, and the strands they map through the evolution of architecture. Proposed origins of architecture; the relationship to vernacular; mechanisms of the Gothic; and the subsequent abstraction of enlightenment thought and later industrialisation will be swiftly surveyed.

#### [Session 2] Roles of craft and hand

This session examines the craft approach and tradition as an exemplar for design by making. Its mechanisms are defined, and the potential for integration of those mechanisms within contemporary practices explored. We'll challenge Richard Sennett's arguments in *The Craftsman* (on the relationship between architecture, computation, drawing and craft), look at the role of the Arts & Craft movement in the sources of modernism, and consider Pallas-maa's "thinking hand".

#### [Session 3] Creativity, intuition and (ir)rationality

This session considers architectural rationalism and the mechanisms of 'creativity', a potentially nebulous term that tends to defy rational definition. By looking at supposedly rational endeavours (engineering, science) we explore the idea that mechanisms of 'aesthetic induction', rather than a process based on reason, is often key in scientific revelation. We extend that proposition to architectural design problems, and test the argument that those mechanisms

are developed through concrete, physical, engagement in the world.

#### [Session 4] Computation and embodiment

To test the role of computation in the discourse of design through making, this session explores the phenomenologists' claim for the necessity of embodiment for thought, and similar recent proposals from within AI that "the body is essential to intelligence" and "the world is its own best model". Seymour Papert's assertion the computer "has the ability to make the abstract concrete" is seen as an argument that parallels that of design by making.

#### [Session 5] Evolved, vernacular and found form

This session examines the principles of an evolutionary architecture tested through making – ie. in which fitness is determined by real-world performance. These principles are explored through Viollet Le Duc's analysis of the Gothic master-builders, Christopher Alexander's 'unselfconscious designers' and the mechanisms of John Frazer's Evolutionary Architecture. By also looking at the techniques of form-finding – simulations made through the material computation pioneered by Gaudi's hanging chains, or digital computation methods such as dynamic relaxation – we look for opportunities to integrate these principles into a design-make approach.

#### [Session 6] Temporality and situatedness

Architectural practice tends to ignore the temporal dimension of buildings – that they have a 'life' – focusing instead a frozen (imagined) perfect state of the opening day. We look at arguments in which, rather than being ignored, the temporal dimension is seen as fundamental for building design and that design-build modes are well-placed to engage in it. Stewart Brand's hypothesis that 'buildings adapt best when constantly refined and reshaped by their occupants' and arguments for 'live-build' as a mechanism for true situatedness of the designer are examined.

#### [Session 7] Prototyping & new fabrication

The technologies of contemporary fabrication provide new mechanisms for the direct control of architectural production. In particular, the digital medium presents a compelling short-cut, removing the 'information gap' that separated the architect from manufacture. In parallel with consequent shift in the focus of designers, the notion of 'fabrication' is replacing that of 'construction' in architectural discourse. This session explores the implications, including the dangers, of these shifts, and proposes that the prototype (through recognition that the uniqueness of architectural projects makes them prototypical by definition) has a fundamental role in architecture's development.

#### [Session 8] Design-Build Conclusion

This concluding session examines the precedents for an architecture developed experimentally through its design-build construction, in a research or learning context. We'll look at the philosophies underlying Frank Lloyd Wright's Taliesin West, Soleri's Arcosanti, the work of Jersey Devil, Rural Studio, and the Open City at Ritoque.

*Each student to present their essay arguments at this session.*

### **Submission**

3,000 word illustrated essay on a subject relevant to the issues covered in the course.

### **Assessment criteria**

- 1/ Evidence of research and reading of appropriate sources
- 2/ Clear and definite formulation of question and structure of argument relevant to the seminar topic
- 3/ Clarity of formal presentation including graphic material
- 4/ Appropriate acknowledgment and referencing of sources of information
- 5/ Recognition of wider context and issues raised by the argument
- 6/ Attempts to bring innovation or creativity to the work.

### **Reading list**

Alexander, Christopher. *Notes on the Synthesis of Form*. Harvard University Press, 1964.

Boden, Margaret. *The Creative Mind: Myths and Mechanisms*. Routledge 2003.

Brand, Stewart. *How Building Learn*, Penguin 1995.

Colquhoun Alan. 'Rationalism: A Philosophical Concept in Architecture', *Modernity and the Classical Tradition*. Pp 57-65.



Frazer, John. *An Evolutionary Architecture*, Themes VII. London: Architectural Association Publications, 1995.

Hubert Dreyfus. *What Computers Still Can't Do*. MIT Press, 1992

Kolarevic, Branko. *Manufacturing Material Effects: Rethinking Design and Making in Architecture*. Routledge, 2008.

MacKay-Lyons, Brian. *Ghost: Building and Architectural Vision*. Princeton, 2008.

Merleau-Ponty, Maurice, *The Phenomenology of Perception*. London: Routledge 1962.

Mitchell, William. *Me++: the cyborg self and the networked city*. MIT Press, 2003.

Oppenheimer, Andrea. *Rural Studio: Samuel Mockbee and an Architecture of Decency*, Princeton Architectural Press.

Otto, Frei. *Finding Form: Towards an Architecture of the Minimal*, Edition Axel Menges, 1996.

Oxman, Rivka & Robert. *AD The New Structuralism: Design, Engineering and Architectural Technologies*, 2010.

Pallasmaa, Juhani. *The Thinking Hand: Existential and Embodied Wisdom in Architecture*, AD Primers 2009. *Introduction: Embodied Existence and Sensory Thought p11-22*.

Papert, Seymour and Harel, Idit. *Constructionism* (New York: Ablex Publishing Corporation, 1991).

Pérez-Gómez, Alberto. *Architecture and the Crisis of Modern Science*, MIT Press, 1983. *Introduction p3-8 and Theoretical Sequel*

Pevsner, Nikolaus. *Pioneers of Modern Design: From William Morris to Walter Gropius*, 1949.

Piedmont-Palladino, Susan. *Devil's Workshop: 25 Years of Jersey Devil Architecture*.

Popper, Karl. *The Logic of Scientific Discovery The Problem of the Empirical Basis*

Sennett, Richard. *The Craftsman*. London, 2008. *Prologue and 'Fractured Skills' p37-45*.

Sheil, Bob (Ed). *Design through Making (Architectural Design)*. Wiley 2005. *Introduction*.

Steadman, Philip. *The Evolution of Designs*. Cambridge 1979.

Viollet-le-Duc. 'The Necessity of Method', *The Architectural Theory of Viollet-le-Duc*, edited by M. F. Hearn

Wolfflin, Heinrich. 'Prolegomena to a Psychology of Architecture', in *Empathy, space and form: Problems in German Aesthetics 1873-93*. Pp 149-159

## Seminar Course 2A

### Timber Technologies

#### Summary

Module Title: Timber Technologies

Tutors: Jeremy Ralph

Credits: 5 credits (3% of award; 50 notional learning hours)  
 \*MSc students must write their essay for this seminar course  
 \*MArch students write essay for EITHER seminar course 2A or 2B

Format: Weekly seminar sessions

Submission: 1,500 word essay

Calendar: Term 1, weeks 3-8

#### Course description and aims

The intention of this seminar course is to provide a survey of the essential knowledge required to operate as a specialist in timber design. It aims to give students a detailed technical introduction to timber that will inform their Design & Make projects. It covers wood's biological, material and mechanical properties, methodologies of its design and application, and emerging digital techniques that are enabling new approaches to the use of timber in architecture. Jeremy Ralph runs the course and the speakers are a mix of Hooke Park staff/tutors and visiting lecturers.

#### Learning outcomes

By the end of the seminar course, students are expected to be able to:

- [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.

[C2] Communicate effectively with a wide range of individuals visually, orally and in writing

[C3] Formulate clear and appropriate hypotheses and arguments, and apply these within a research agenda.

## Indicative content

### [Session 1] Introduction – Forestry, Silviculture and Timber

Overview of course; introduction to timber: history of timber as an architectural material, survey of emerging applications; history of forest management for architectural timber, UK forest resources; overview of timber supply chains; overview of UK timber types – hardwood/softwood, conifer/broadleaf; introduction to relevant texts and web resources.

### [Session 2] Anatomy of timber

Macro tree structure including: growth of a tree; transverse and longitudinal sections of hard and softwoods; juvenile wood, heart wood, sap wood; intra ring anatomy (early wood & late wood); cellular structure (tracheids, vessels, cells, microfibrils etc); chemical structure including cellulose, lignin; moisture content (inter and intra cellular water). Implications of anatomy for strength, stiffness, hardness, durability, dimensional stability.

### [Session 3] Traditional timber framing techniques

Building with green, seasoned, sawn and roundwood timber; timber to timber connections; frames, crucks and other building types; dealing with timber movement and drying; integrating traditional techniques with current building & environmental regulations. Seminar based on case studies

### [Session 4] Timber products and processing

Primary & secondary breakdown of logs including saw lines; resawing; sawing patterns; specialist breakdown such as veneers. Drying of timber, both air and kiln drying. Mechanical engineering of timber: finger jointing; laminating; glulam; LVL; CLT etc. Chemical engineering including: preservative treatments; thermal modification; acetylation; cellulose extraction and reformation.

Environmental impacts, carbon costs and life-cycle assessments to be included. Economics of manufacturing costs versus market value.

### [Session 5] Structural design and contemporary timber fabrication

Principles of timber structural design; structural configurations; failure mechanisms; connection types; UK and Eurocode design codes, grading criteria; species differences; timber testing. Interior and exterior uses; Timber species choice for interior joinery; detailing for furniture, flooring, windows, etc. Specification and detailing for cladding, roofing and other exterior uses. New technologies in timber fabrication; use of engineered timbers; roundwood in contemporary fabrication; digital design; robotics; modern timber to timber and timber to metal connections; integrating timber with other materials. Seminar based on case studies of globally relevant projects.

## Submission

1,500 word illustrated essay on a subject relevant to the issues covered in the course.

## Assessment criteria

- 1/ Evidence of research and reading of appropriate sources
- 2/ Clear and definite formulation of question and structure of argument relevant to the seminar topic
- 3/ Clarity of formal presentation including graphic material
- 4/ Appropriate acknowledgment and referencing of sources of information
- 5/ Recognition of wider context and issues raised by the argument
- 6/ Attempts to bring innovation or creativity to the work.

## Reading list

Deakin, Roger. *Wildwood: A Journey Through Trees*. 2008.

Desch, H. *Timber: Structure, Properties, Conversion and Use*. Palgrave Macmillan, 1996.

Dickson, Michael, *Sustainable Timber Design: Construction for 21st Century Architecture*. Routledge, 2014.



Evelyn, John. *Sylva; Or a Discourse of Forest-Trees, and the Propagation of Timber in His Majesties Dominions*. 1664.

Hemery, Gabriel. *The New Sylva: A Discourse of Forest and Orchard Trees for the Twenty-First Century*. Bloomsbury, 2014.

Herzog, Natterer, et al. *Timber Construction Manual*, Birkhauser

Kermani, Abdi. *Structural Timber Design to Eurocode 5*. Wiley, 2013.

Ozelton and Baird. *Timber Designers Manual*. Wiley, 2006.

Rackham, Oliver. *Woodlands*. Collins.

## Seminar Course 2B

### Agendas of Ruralism

#### Summary

Module Title: Agendas of Ruralism

Tutor: Rose Ferraby

Credits: 5 credits (3% of award; 50 notional learning hours)

\*MArch students write essay for EITHER seminar course 2A or 2B

Format: Two full days of morning and afternoon seminar sessions.

Submission: 1,500 word essay

Calendar: Term 1, weeks 4-9

Submission: 1,500 word essay

#### Course description and aims:

This seminar series aims to enable students to place D&M projects within a critical context informed by the English rural condition. It provides a foundation in the cultural and societal landscape within which an architect at Hooke Park must operate. It equips students with the knowledge and mechanisms to form an intellectual position with respect to contemporary debates surrounding rural architectures in our specific geographic, historical and environmental context. It aims to provoke a personal interest in developing a true sense of place during the 16 months at Hooke Park and an attitude towards the implications of designing architecture in a rural as opposed to urban environment.

The series will be delivered over two separate days, the first in late October and the second in late November December. Students will be required to read texts beforehand (typically 60-100 pages per day) will be expected to present their analysis of the readings to the group.

#### Learning outcomes

- By the end of the seminar course, students are expected to be able to:
- Demonstrate understanding of the issues and debates that define an architectural ruralism.
- Demonstrate knowledge of the history, theory and contemporary arguments relating to architecture in a rural context.
- Understand the current issues relating to rural architectures, including environmental and societal concerns, in UK and global contexts.

#### Assessment

Students are required to submit 1,500 word illustrated essay relating to the topics covered by the course, handed in at the beginning of Term 2.

#### Indicative content

##### [Session 1] Whose Rural Agenda?

What is the rural? What is the countryside? How far is the idea of 'the rural' a product of urban culture? What happens when the rural starts to speak for itself, when the rural is seen, not as a subservient district of the city, the 'true centre of culture', but as a critical environment of culture in its own right? Who is invested in rural space today?

What happens when perspectives clash? And where is your own position in relation to the many different perspectives on the rural? This short talk and subsequent discussion will begin to answer some of these difficult questions exploring the rural as a site of very interesting tensions.

#### [Session 2] Three Approaches to the Picturesque

This seminar will introduce the tradition of the picturesque and consider the role it has played in constructing ideas of beauty in rural areas. It will go on to explore some critiques of the picturesque and consider another way of thinking about the aesthetics of landscape from an environmental point of view. Finally it will explore a renewed interest in the picturesque in contemporary film and photography that re-complicates the idea of the rural.

#### [Session 3] Local Distinctiveness

This seminar will introduce the idea of 'local distinctiveness' and trace its emergence from the environmental movement. It will give a little history to the arts and environmental charity Common Ground and look in some detail at their project 'New Milestones' considering ways in which the arts, and building more generally, can find its inspiration from its own context (people, geology, ecosystem, history etc).

#### [Session 4] The New Nature Writing

'Certain places can hold certain thoughts as they might hold certain stones or plants'. So claims Robert Macfarlane, one of a group of authors recently labeled as 'The Nature Writing' in the UK. What does he mean? Why are we suddenly so fascinated by 'nature' today? What do we mean by 'nature'? This seminar will explore some recent innovative and creative approaches to landscape and some arguments and debates that have emerged from this recent literary movement.

## **Seminar Course 3**

### **Making And Praxis**

Module Title: Making and Praxis  
Tutors: Visiting speakers  
Credits: 10 credits (5.5% of award; 100 notional learning hours)  
Format: Study trip and visiting lectures  
Submission: 3,000 word essay  
Calendar: Term 2, weeks 1-8

#### **Course description and aims**

This course is structured as a series of seminars given by visiting speakers to Hooke Park, and talks and tours received during visits to universities, industrial fabricators and reference building projects held during Term 2. A study trip is held in the first week of term.

Each speaker will present their position on the relationship between making and their particular praxis (ie. form of practice as an artist, architect, engineer, fabricator, educator etc). The speakers form a cross-section of leading practitioners working in novel ways in contemporary architectural production. A specific focus of the course is the relationship between making and place; this is explored explicitly through two sessions with Rose Ferraby on the topics of ruralism and local distinctiveness.

The student is to assimilate these positions and practices and present an illustrated essay that develops an argument extracted from one or more contributors to the series. The essay should critically appraise their methods of praxis and particular relationships between design process, its material realisation and the place of that realisation.

#### **Learning outcomes**

By the end of the seminar course, students are expected to be able to:

- [A5] Understand advanced technologies and processes of fabrication and construction and their procurement.
- [A6] Understand the current issues relating to rural architectures, including environmental and societal

concerns, in UK and global contexts.

[C2] Communicate effectively with a wide range of individuals visually, orally and in writing.

[C3] Formulate clear and appropriate hypotheses and arguments, and apply these within a research agenda.

### Indicative content

Speakers and dates will be confirmed at the start of Term 2. Previous speakers include:

- Sophie Le Bourva (Arup)
- Jos Smith (Exeter University/ Common Ground)
- Gordon Cowley (Cowley Timber)
- Steven Johnson (The Architectural Ensemble)
- Fabian Schurer (Design-to-Production, Zurich)
- Michael Knauss (ETH Zurich)
- Alexander Holl (Blumer Lehman)
- Achim Menges (ICD Stuttgart)

### Assessment criteria

- 1/ Evidence of research and reading of appropriate sources
- 2/ Clear and definite formulation of question and structure of argument relevant to the seminar topic
- 3/ Clarity of formal presentation including graphic material
- 4/ Appropriate acknowledgment and referencing of sources of information
- 5/ Recognition of wider context and issues raised by the argument
- 6/ Attempts to bring innovation or creativity to the work.

## Seminar Course 4

### Dissertation & Thesis Development

Module Title: Thesis & Dissertation Development

Tutors: Mark Campbell

Credits: Un-assessed course to support the dissertation/thesis

Format: 5 seminar-format sessions and tutorials

Calendar: Term 3, weeks 1-5

### Course description and aims

This 5-session seminar series aims to equip students with the knowledge and skills to develop a successful Design + Make dissertation (MSc) or thesis (MArch). It provides information on the conventions, procedures and goals of dissertation/thesis production, and guides students through the formulation of their topic. Strategies for conducting research, structuring the dissertation/thesis, writing the document and scheduling its production are developed. Each student is required to present one aspect of their dissertation/thesis development every seminar session — working from abstract to outline, structure, chapter topics, illustration, footnoting and bibliography.

### Learning outcomes

To understand the procedure of producing a Masters dissertation/thesis; formulate and express research questions, evidence and arguments.

By the end of the seminar course, students are expected to be able to:

[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.

### Indicative content

#### [Session 1] What is a dissertation; what is a thesis?

This seminar presents the history and forms that student dissertations and theses have taken at the AA. Drawing on past examples, it discusses the importance of the written component in the D+M programme and the methodologies

for conducting the initial research necessary to formulate the dissertation / thesis proposal. The fundamental distinctions between the MSc Dissertation (which presents technical research) and the MArch Thesis (which presents a critical argument) are discussed.

During this session students are expected to present their initial thoughts regarding their topic.

#### [Session 2] Structure

This seminar examines how to structure the document and how to approach the writing of this work. It discusses time management; working to word counts; understanding writing habits and the necessity of setting a programme.

#### [Session 3] Research

Expanding on the previous seminars this session discusses how to develop and extend the initial research to formulate and produce the dissertation/thesis. It discusses various methods of research and organization and archiving of material.

At this session students will be expected to submit a draft abstract of their dissertation/thesis topic for discussion.

#### [Session 4] References, Layout and Illustrations

This session presents good practice for referencing and footnoting the thesis. Drawing on a series of examples, it will also discuss the importance of layout and the use of illustrations to effectively complement the written work.

#### [Session 5] Dissertation/Thesis Proposal

At the final session students will be expected to give a formal presentation of their dissertation / thesis proposal. This presentation will include the abstract, topic, principal research / argument, salient examples and work plan for completion.

# [6] MODULE SPECIFICATIONS: STUDIOS

## Studio 1

### Induction Studio

Module Title:	Induction Studio
Tutors:	Zachary Mollica, Martin Self, Emmanuel Vercruysee
Credits:	15 credits (8.5% of award; 150 notional learning hours)
Format:	Twice-weekly taught sessions
Submission:	Individual Design Dossier
Calendar:	Term 1, weeks 1-4
Location:	London (weeks 1&2); Hooke Park (weeks 3&-5)

### Rationale and Aims

The Induction Studio introduces students to the design software and digital fabrication techniques that are used throughout the programme. Through a series of taught workshops an essential skill-set in 3D modeling, generative and relational modeling techniques, the principles of integration with digital fabrication, and video documentation are established. The aim is to provide the cohort with a shared skill foundation and confidence in these techniques and a critical understanding of their applicability.

### Learning Outcomes

On completion of the Induction Studio students are expected to:

- [A2] Demonstrate critical awareness of advanced digital design techniques, the realms of their application, and their relative merits when integrating design and production.
- [B1] Conceive, produce, represent and articulate a design proposal.
- [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] Document a complex design for fabrication.
- [C2] Communicate effectively with a wide range of individuals visually, orally and in writing

### Indicative content

The 4-week Induction Studio is a series of classes and tutorial-workshops through which the foundation skill-base for the Design + Make programme is established. On an iterative cycle software, fabrication and documentation techniques are learned and applied development of a fabricated sample construction component. This component is to test new assembly and connection logics enabled by the marriage of analogue making techniques, digital fabrication, and the new technologies of 3D scanning.

Each student is to select an existing connection detail or methodology which will form the source of inspiration and inform the investigation for the “Assemblies” project. After a systematic and forensic analysis of the fundamental principles, the key parameters and observations derived from this connecting logic will get interrogated, structured, systemised, documented and reinvented through 6 techniques and methods which form the essential toolkit of the Design+Make course:

- 1/ Analogue Fabrication Techniques:
- 2/ Digital Drawing Development Tools: Rhino and Grasshopper
- 3/ CAM; Machine and Software familiarisation
- 4/ Robotic Fabrication Procedures: End-Effector chainsaw
- 5/ Scanning Technologies and Techniques: Photogrammetry and LIDAR scanning, processes and software
- 6/ Film Techniques: Premiere and After Effects

## Submission

An Individual Design Dossier (12-20 pages) which is to document through annotated illustrations the development, processes and outcomes of the project,

A 30-second edited film that communicates the processes and invention within the project.

## Assessment Criteria

- 1/ Demonstration, through the Design Dossier, of skill in developing a design through the techniques presented to the student
- 2/ Demonstration of a critical understanding of the position of computational design and fabrication tools within design practice
- 3/ Demonstration of a developing familiarity of the processes of making, including digital fabrication
- 4/ The demonstration of a clear structure and organisation for the presentation of work, and the ability to plan, develop and present comprehensive and compelling documentation.

## Studio 2

### Core Studio

#### Summary

Module Title:	Core Studio
Tutors:	Martin Self, Emmanuel Vercruyssen, Charley Brentnall, Zac Mollica
Module Type:	Project
Credits:	20 credits (11% of award; 200 notional learning hours)
Format:	Twice-weekly design tutorials
Submission:	Group Design Dossier
Calendar:	Term 1, weeks 5-10
Location:	Hooke Park

#### Rationale and Aims

The Core Studio consists of the design and making of small inhabitable projects in the Hooke Park woodland by teams of 3-4 students.

The Studio aims to introduce the material processes of full-scale experimental construction at Hooke Park and to enable the students to develop design-make approaches driven by considerations of landscape and material. The studio aims for a built outcome that is deeply embedded in Hooke Park's physical landscape and material context.

The core educational aims are for each student to develop integrated design and making skills through a small real-ised project, and to establish a critical position with respect to strategies of design through making at a specific site.

During the studio, students are expected to develop their skills gained in the Induction Studio, become fully orientated in Hooke Park, and become experts with the workshop and its construction equipment. The Studio should act as a vehicle to test ideas that could be developed further in proposals for the Main Project. The Studio also serves to establish the mechanisms of group working, the processes of safe construction planning, and effective communication of design argument and critical reflection.

MArch and MSc students are mix within the project teams so that there are complementary interests within each group.

#### Learning Outcomes

On completion of the Core Studio students are expected to:

- [A4] Understand innovative application of timber in architecture, including through digital design and fabrication techniques
- [B1] Conceive, produce, represent and articulate a comprehensive design proposal.
- [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] Document a complex design 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.
- [C2] Communicate effectively with a wide range of individuals visually, orally and in writing

### **Indicative Content**

The six-week Core Studio is structured around twice-weekly group tutorials at which intentions, proposals and progress are presented and discussed. Throughout the Studio students have access the workshop and construction equipment at Hooke Park and workshop staff are available to support and instruct.

The Core Studio runs in parallel with Seminar Courses 1 & 2 and the content of those courses are intended to critically inform the Studio in term of design and material strategies.

#### [Week 1-2] Project formulation

Each team, in consultation with your tutors, formulates and presents their design proposal, to include: development of a material strategy for structure and envelope, as part of a stated ambition concerning material sourcing; site analysis including three-dimensional mapping of the proposed sites; explicit statement of design process and strategies for integrating making with design.

#### [Week 3] Design development and prototyping

A period of developing the project design proposals for the constructed pieces, including full scale prototyping and on-site mock-up, leading to: a full, documented, set of design proposals (to include drawings, models, photomontage and other representations) to present at the Mid-Project Review. A construction-phase plan of risk assessment and method statements is produced at this point under tutor guidance.

#### [Weeks 4, 5] Project construction

#### [Week 6] Project completion, documentation and Final Presentation

### **Submission**

A group-produced Design Dossier (50-80 pages) is to document the development, outcomes and analyses of the project. Both In-Progress and As-Built Drawings are to form part of the submission and should be used critically as a mechanism to analyse the project. The dossier should include a short (maximum 1,000 words) written analysis of the project's intentions, processes, architectural attributes.

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 project as it goes along.

### **Assessment Criteria**

- 1/ Demonstration, through the Design Dossier, of having developed and tested a design-make methodology.
- 2/ Demonstration of a developing familiarity of the processes of making.
- 3/ Demonstration of the application of relevant computational design processes as introduced in the Induction Project.
- 4/ The demonstration of an understanding of the concepts, strategies and analytical tools presented through the studio as mechanisms for establishing a position relating to place and material.
- 5/ The demonstration of a clear structure and organisation for the presentation of work, and the ability to plan, develop and present comprehensive and innovative documentation.



## Studio 3

### Main Project

Module Title:	Main Project
Tutors:	Martin Self, Emmanuel Verduyck, Charley Brentnall, Zachary Mollica
Submissions:	MSc: 1/ Individual Design Dossier (30 credits) 2/ Assessment of Prototype (30 credits) 3/ Individual Dissertation (60 credits) MArch: 1/ Individual Design Dossier (30 credits) 2/ Assessment of Building (30 credits) 3/ Group Project Report (20 credits) 4/ Individual Thesis (40 credits)
Calendar:	Terms 2-4
Location:	Hooke Park

#### Rationale and Aims

The Main Project consists of the design, making and analysis of full-scale architectural structures at Hooke Park which form the primary evidence for the subsequent dissertation (MSc) or thesis (MArch).

For the **MSc** students the Main Project is a full-scale experimental timber prototype completed at the end of Term 3. The prototype is designed with the explicit intent to test innovative architectural applications of timber, and radically exploit the woodland and fabrication resources (including new robotic fabrication equipment) of Hooke Park. Research topics are agreed with tutors during Term 1, and are dedicated to the innovative technical application of timber within architecture. The core aim is for the student to develop advanced knowledge and critical understanding of the emerging fabrication and timber technologies.

For the **MArch** students the Main Project is a permanent building for the Hooke Park campus. Construction of the buildings starts in the third term, with completion in the autumn. The range of research topics within these projects is broader than for the MSc, and can encompass individual interests in environmental and construction technologies, alternative forms of design practice, or issues relating to Hooke Park's topographic and cultural landscape. The core aim is for the student to develop advanced knowledge and critical understanding of architectural production and to reflect on this in a focused individual thesis.

#### Learning Outcomes

On completion of the Main Project students are expected to:

- [A1] Demonstrate systematic knowledge of the historical and theoretical bases of design-build approaches to architecture.
- [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] Understand advanced technologies and processes of fabrication and construction and their procurement.
- [A6] Understand the current issues relating to rural architectures, including environmental and societal concerns, in UK and global contexts.
- [B1] Conceive, produce, represent and articulate a comprehensive architectural design proposal.
- [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] Document a complex design 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] [MSC] Conduct independent research that incorporates physical prototyping as part of its evidence.
- [B6] [MArch] Develop propositional arguments through documentation and analysis of a built project.
- [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.

## Indicative Content

The Main Project is structured according to the academic terms, so that Term 2 of the programme is the design phase, Term 3 is primarily dedicated to making, and the final Term is focused on dissertation/thesis production:

### [Studio 3A] Design Studio – Term 2, 11 weeks

For **MSc** students, the first two weeks of term consist of a detailed literature search into traditional and emerging techniques and approaches to design in timber which is developed into a statement of research intent to be submitted by the student at the start of Week 3. Weeks 3-5 are spent fully formulating and developing the concept design of the prototype, leading to a mid-term presentation of the research proposal and preliminary prototype design, for feedback and critique. This is followed in Weeks 7-11 by a period of detailed design for the prototype, consisting of an iterative cycle of digital modeling and fabrication, full-scale mock-ups, model making and documentation, such that the Prototype is proved viable for its 8-week phase of making in Term 3.

For **MArch** students, term 2 consists of the team-based design development of the building. This is an iterative process of design work, mock-ups, prototypes, testing, documentation and re-prototyping leading into the full construction of the project. The calendar for this phase is determined with the tutors, according to the specific brief of the project. This identifies key activities including development of the associated landscape design including its physical representation on site; development with consultants of the engineering schematics of the project and production of material for planning application. The schematic design is presented mid-term for feedback and critique. This is followed in Weeks 7-11 by a period of further design development leading to an end-of-term presentation of full design proposal.

Assessment: For both **MSc** and **MArch** students the Design Studio is documented in an individual Design Dossier submission at the end of Term 2 (see 5.3.5).

### [Studio 3B] Make Studio – MSc: Term 3; MArch: Term 3 and Summer period

For **MSc** students the Make Studio consists of the fabrication and construction of the Prototype, as conceived developed and designed in Studio 3A. Students are responsible for the scheduling of their project production in terms of material procurement, fabrication and assembly. The fabrication equipment of the main workshop, assembly workshop and robotic fabrication cell are available for use during this phase. Specific needs, for example for test equipment, should be discussed in advance with Hooke Park staff. Specific consideration must be given to how the Prototype will be tested and evaluated by the student. All tooling, fabrication and assembly processes must be rigorously documented for use in the Dissertation.

For **MArch** students the Make Studio consists of the fabrication and construction phase of their building. Because of the greater complexity of the fuller architectural project the Make Studio phase extends through the summer academic break. Prefabrication activities start after Easter and the building phase begins around the middle of summer term, with the mobilisation of the project's site as a managed and regulated building site, with the relevant CDM (Construction Design Management) and other health & safety regulations observed. Depending on the nature of the building project, professional contractors and trades-people are engaged where necessary to supplement the skills of the students. The AA SummerBuild programme enables other volunteers to be involved in the construction phase. MArch students are required to spend a minimum of 4 weeks at Hooke Park during this period, contributing to the making of the building they have designed.

Assessment: For both **MSc** and **MArch** students the Make Studio is assessed through an assessment of the prototype or building (see section 4.3 for assessment mechanism and criteria).

## Submissions

### Individual Design Dossier (MArch and MSc)

This document is individually produced by all students during the design formulation stage for the project (ie. Term 2). It is to present the design development from concept to full proposition, incorporating design speculations including alternative proposals that might not be realised. The role of making during this design phase must be made explicit in the submission.

- For MSc students the Dossier documents the design evolution of their Prototype.
- For MArch students the Dossier documents the individual's design contribution made to the collective group project.

Assessment criteria:

- 1/ Clear documentation of the individual's design contribution to the project
- 2/ Evidence of design speculation including un-realised proposals
- 3/ Evidence of critical appraisal of design propositions
- 4/ Clarity of formal presentation including quality of graphic material
- 5/ Attempts to bring innovation or creativity to the work

### Group Project Report (MArch only)

Each MArch team is to submit a group-produced Project Report at the end of the Make Studio when the building construction is complete. This is to present the processes of the design and making of the building, highlighting the experimentation carried out. The conclusion should include the team members' critical assessment of the outcome of the project. Appendices should collate the project's full construction documentation.

Assessment Criteria:

- 1/ Clear documentation of the process of the collective design for the project
- 2/ Clear documentation of the making of the project including experimentation
- 3/ Evidence of group development of an integrated design-make methodology
- 4/ Evidence of critical appraisal of design propositions and the as-built project
- 5/ Clarity of formal presentation including quality of graphic material
- 6/ Attempts to bring innovation or creativity to the work

### Dissertation (MSc)

MArch students produce their 12,000 word individual Dissertation for submission at the end of the 12-month programme. The Dissertation should:

- Document the formulation of the research proposal including statement of research intentions and methodology
- Form a critical and technical appraisal of the literature and precedent search
- Record and critically appraise the design, development and making of the Prototype
- Describe of the methodology and criteria through which the Prototype was tested
- Document the results of the testing and technical interpretation of those results
- Present the potential applications of the prototype system, including design representations of architectural applications
- Form a critical appraisal of the future potential application of the Prototype system

Assessment Criteria:

- 1/ Evidence of research and reading of appropriate sources
- 2/ Clear rationale for area of study and research methodology adopted
- 3/ Evidence of appropriate investigative procedures, data collation and analysis
- 4/ Strength and originality of the technical proposition evidenced through the research
- 5/ Clarity of formal presentation including graphic material and use of illustrations
- 6/ Appropriate acknowledgment and referencing of sources of information
- 7/ Recognition of wider context and issues raised by the research

- 8/ Attempts to bring innovation or creativity to the work

### Thesis (MArch)

MArch students produce their 8,000 word individual Thesis for submission at the end of the 16-month programme.

The thesis should:

- Form an analysis and critique of the processes and outcome of the design and production of the Main Project building
- Concern design methodology itself, or the ecological, societal, material or other aspects of architecture. Specifically, however, it must be an argument that is evidenced by making
- Formulate a specific question and develop a novel argument on the theory or practice of architectural design within a design-build context
- Be propositional, in the sense of proposing and testing alternatives to conventional design practice
- Test and address counter-arguments to the proposition
- Draw an clear and novel conclusion.

Assessment Criteria:

- 1/ Evidence of research and reading of appropriate sources
- 2/ Clear and definite formulation of question and structure of thesis argument
- 3/ Strength and originality of the proposition made through the argument
- 4/ Clarity of formal presentation including graphic material and use of illustrations
- 5/ Appropriate acknowledgment and referencing of sources of information
- 6/ Recognition of wider context and issues raised by the argument
- 7/ Attempts to bring innovation or creativity to the work

# [7] RESOURCES

## General Resources

Students have access to all of the AA school's facilities and activities, in both Hooke Park and London. Students are encouraged to aim to maximise their interaction with the AA School community, to engage in its debates and activities. The Hooke Park campus is physically separated from the main school so it is important that students fully engage with other student groups and their tutors when they visit Hooke Park, and, when in London, maximise their exposure to the lectures, workshops, juries and discussions that go on in the school. The AA's London based Public Programme is an extensive series of public events dedicated to contemporary architectural culture: exhibitions, members' events, lectures, seminars, conferences, book launches and publications. The Evening Lectures are available online to view at Hooke Park.

The facilities at Bedford Square include the Main Library, Photo Library, Computer Room, Wood- and Metalworking Workshop, Model Shop, Digital Photo Studio, Digital Prototyping Lab and Audiovisual Department.

## Student Support and Guidance

The programme administration is based in London (admissions and academic coordination) with support at Hooke Park through a part time academic coordinator, Laura Kaddey, who is responsible for issues including submissions and student welfare in Dorset. For welfare issues that are urgent or require help beyond Hooke Park's resources, the AA's registrar, Belinda Flaherty, and graduate school coordinator, Danielle Hewitt, are the points of contact for students. The AA Student Handbook and AA School Academic Regulations describe the resources, support and guidance provided to all AA students, including provision of counseling and procedures for appeal.

Design + Make students start the programme in London and join all new students for the AA's pre-term Introduction Week and the first week of term in which each study programme is introduced. Additionally, a 2-day induction weekend is held at the beginning of the academic year to introduce students to Hooke Park, its staff and the local area. An information pack of maps, local information and details of local doctors, etc, is provided.

## Hooke Park

Prior to coming under the ownership of the Architectural Association, Hooke Park was developed in the 1980s by the Parnham Trust as a college for teaching and researching new ways of using wood in furniture and construction. A small campus was built in the forest, following the ethic of using low-value timber from the surrounding forest as construction material. The result was three groundbreaking prototype buildings by award-winning architects, which demonstrate the rich potential of round-wood construction. They form a provocative architectural legacy, and are an important educational tool for the AA to have inherited.

The Workshop, by Richard Burton of ABK and Frei Otto, with the engineers Buro Happold, uses spruce thinnings from the forest that form a compression barrel-vault structure. Completed in 1989, the result is a long-span enclosure built using waste materials from the surrounding forest. The dormitory, Westminster Lodge, was completed in 1999. Designed by Edward Cullinan with Buro Happold, it also uses green wood from Hooke's forest, providing eight bedrooms around a central communal space. A timber lattice of spruce thinnings carries a planted turf roof. The Refectory, also by Richard Burton of ABK and Frei Otto with Buro Happold, was built in 1985. It was designed as a prototype house and uses an experimental structure that consists of roundwood A-frames from which a tent-like tensile timber roof is suspended. Today, the building contains the kitchen and dining space for staff and students.

Since the Architectural Association took ownership of Hooke Park, students and tutors have realised a series of small-scale projects within the woodland. These include the 2005/6 Fractal Pavilion by Intermediate 2, The Crossings Project, completed in 2007, which was an experimental footbridge structure within the forest and A Separate Place, a hanging retreat in the forest built in 2007.

Design + Make projects began with the Big Shed Assembly Workshop and Caretaker's House which were completed in 2012; the first Student Lodge in 2013; a second Student Lodge and Timber Seasoning Shelter in 2014 and the Boiler House in early 2015.

## Libraries

### AA Main library

New AA students are introduced to the School's Main Library during Introduction Week. The Library holds more than 40,000 volumes on the history of architecture, architectural theory, contemporary architectural design, building types, interior design and landscape design. It also holds a full range of architectural periodicals and magazines and reference copies of MA and PhD thesis. Students at Hooke Park can access the Main Library's search facilities and order books from the library for loan to Hooke Park. Books can be posted to Hooke Park, and interlibrary loans for books not in the AA collection can be arranged. Many of the AA Library's online resources, including online magazine subscriptions, can be accessed from Hooke Park.

### Hooke Park library

Hooke Park has a small reference library of books covering topics of sustainable and rural architectures, timber and other fabrication technologies, forestry, furniture making and other crafts. A sign-out system operated for borrowing books. Reference copies of programme books of the D+M Seminar Courses are held in the Hooke Park library – these are to be kept in the library. There is a budget for extending the library: suggestions from students for new books should be made to the Programme Director.

## Studio

The Hooke Park workshop building includes a studio space for Design + Make students. The Hooke Park Studio includes computing facilities, scanner-photocopier, printers and an A1 plotter. Each student has their own desk in the studio. Students receive an AA email account. When in London, students have access to the Computer Room facilities. An honesty-box system operates for paying for personal printing/copying costs.

Studio space is provided in Bedford Square for the periods when Design + Make students are required to be in London.

## Workshops

### Joinery Workshop

The Hooke Park fabrication workshop is fully equipped with woodworking hand-tools, and power tools as listed below:

Workshop machinery: 3-axis CNC router 1220mm x 2440mm bed, tilting arbour saws, wood lathes, metal lathe, band saws, morticer, planer thicknesser, bench grinder, bench drills, horizontal borer, bench mounting disc sander, belt finisher, panel saw. Spindle moulder and four sided planer (only operated by workshop staff).

Portable electric tools: Jigsaws, cordless drills, palm sander, belt sander, router, grinder, heat gun, pistol drills, plaster board driver, fret saw. Electric plane, biscuit jointer, circular saw, gas nail gun (under instruction only).

The fabrication workshop is used throughout the year by visiting groups from the main school. At specific periods, the workshop can be reserved exclusively for the use of D+M for fabrication. At other times, access to workshop is generally possible but requires prior arrangement with the Workshop Technician. The workshop operates 9am – 5pm Monday – Friday during term time.

### Big Shed Assembly Workshop

The Big Shed assembly workshop will generally be available for D+M's use during the workshop operation hours. It is a 500sqm prototyping and assembly space with a level concrete floor, electric power supply. The building contains

*\*The workshop tools, machinery and equipment may only be used under supervision of the workshop manager or technicians, and only following instruction in using that equipment. It is the student's responsibility to use equipment safely and to ask the supervisor if there is any doubt in how to work safely. Any construction-scale activity is subject to the UK's Construction Design Management regulations, which defines obligations for students, tutors, and staff to ensure safe working practices. Relevant training in construction site awareness and practices such as working at height are provided. Students must successfully complete this training before engaging in construction site activities.*

## **Robotic Fabrication Facility**

The lab has state-of-the-art fabrication facilities equipped with KUKA KR150 robot capable of handling and fabricating full-scale construction prototypes and fabrication. Custom end effectors have been developed to maximise support for the creative designer. Custom plug-ins/ software are developed as part of the facility to create a simple user interface for the students.

- Cell Size: 7m x 6m x 5m
- End-effectors: Spindle, Gripper, Chainsaw
- Aids: Rotary 7th Axis, Stock Rail System
- Robot: Kuka KR-150 (2000 series)
- Reach: 2700mm
- Max Payload: 150kg
- Controller: KR C2
- Digital I/O: 10 Inputs, 10 Outputs
- Power: 24V and 240V

## **Hooke Park Forest**

The Hooke Park estate comprises approximately 140 hectares (350 acres) of woodland, consisting mainly of spruce and beech trees planted in the 1950s. There are also stands of western red cedar, Douglas fir and Corsican pine, and of combined oak and spruce. In addition to the densely planted forest, there is a rich variety of woodland landscape, including recently felled clearings, an ancient willow coppice and a broadleaf coppice of ash, hazel, alder and poplar. Hooke Park is designated as Ancient Woodland, and an active forestry programme maintains the woodland, with the objectives of sustainable timber production and improved biodiversity.

As Hooke Park is a working woodland, any activity that requires access to the forest or may otherwise affect the forest or the forestry activities must be coordinated with the forester, Christopher Sadd. Where Design + Make projects require timber material from the forest, the forester must be consulted well in advance so that felling and sawyer contractors can be arranged. Hooke Park has a Wood-Mizer on site for timber reduction.

## [8] STAFF CVS

### Martin Self

#### Programme Director

#### About

Martin Self is an engineer, designer and educator who has taught design and theory at the Architectural Association since 2004. He is the Director of Hooke Park, the Architectural Association's woodland campus, and Programme Director of the MArch Design + Make course. He was a founder member of Arup's Advanced Geometry Group, studied architectural theory at the AA, and has provided structural engineering and form-finding consultancy within practices such as Zaha Hadid Architects and Antony Gormley Studio. Trained originally in aerospace engineering, he worked at Ove Arup & Partners in a series of specialist and design roles over a ten-year period.

#### Academic Qualifications

- 2006-07 Architectural Association School of Architecture, London: MA (Distinction) Histories & Theories of Architecture. Thesis: Computation, Mind and Body: Intentionality in Architecture.
- 1993-96 University of Bristol, UK, 1993-1996. BEng (Hons, First Class) Aerospace Engineering.

#### Academic Positions

- 2010– Programme Director, MArch Design + Make, Architectural Association School of Architecture, London.
- 2009– Director, Hooke Park, Dorset. Architectural Association School of Architecture, London.
- 2009 Course Tutor, History and Theory Studies, Diploma School: Anti-Rationalism. Architectural Association School of Architecture, London.
- 2007-08 Course Tutor, History and Theory Studies, Diploma School: Rethinking Complexity, Authorship, Computation (2007). Architectural Association School of Architecture, London.
- 2005-10 Unit Master, Intermediate Unit 2, with Charles Walker. Architectural Association School of Architecture, London.
- 2003-05 Assistant Tutor, Intermediate Unit 2, Architectural Association School of Architecture, London.

#### Practice

- 2009 Consultant to Anthony Gormley Studio:  
*Drift*, Marina Bay Sands, Singapore, 2009  
*Another Singularity*, Galleria Continua Beijing, 2009  
*Aperture*, Xavier Hufkens Gallery, Brussels, 2010.
- 2008-09 Zaha Hadid Architects, London. Envelope design for Dongdaemun Design Park & Plaza, Seoul.  
1996-2006 Ove Arup & Partners, London:
- 2001-06 Arup: Advanced Geometry Unit. Founder member of AGU. Responsible for the structural engineering and geometric definition of many built projects and competition winning schemes. Projects include those authored within the group and collaborations with architects including OMA, UNStudio, Alvaro Siza & Eduardo Souto De Moura, Shigeru Ban and David Adjaye, and artists Anish Kapoor and Chris Ofili.  
2004 – Drukpa Trust: Druk White Lotus School, Ladakh, India. Responsible for engineering and architectural aspects of construction of a remote, award-winning, school.  
2001 – Arup: Lightweight Structures Group  
2000-01 – Arup London Millennium Bridge task force. Member of specialist team that solved the vibration problem of the Millennium Bridge.
- 1999-2000 Arup: Building Engineering Group. Structural engineering design for several international projects, including Atlanta High Museum of Art extension (Renzo Piano).
- 1996-98 Arup: Advanced Technology Group. Member of group specialising in advanced analysis and product design. Wind engineering for projects including London Eye, London Millennium Bridge, Angle of the North (Antony Gormley), Kingdom Tower Riyadh, Hong Kong International Finance Centre.
- 1992-95 Airbus Ltd, Filton, UK. Awarded Undergraduate Sponsorship including year-out and summer



employment. Training including 12-week Rolls-Royce workshop skills course. Experience in aircraft design and manufacturing.

### **Selected publications**

- 2016 'Tree Fork Truss: Geometric Strategies for Exploiting Inherent Form' with Zachary Mollica. Paper published as part of 2016 Advances in Architectural Geometry conference.
- 2015 'Hooke Park: Applications for Timber in its Natural Form.' Advancing Wood Architecture, Routledge.
- 2012 'Fractal, Bad Hair, Swoosh and Driftwood: Pavilions of AA Intermediate Unit 2, 2006-09', Manufacturing the Bespoke, Ed Bob Sheil, Wiley.
- 2011 Making Pavilions (editor and author) AA Publications.
- 2008 'Reciprocity, Hierarchy and Discreteness', Parametric/Algorithmic Architecture: From Control to Design, Actar.
- 2006 'Woven Surface and Form', AD Architectural Design: Architextiles, November 2006 (with Daniel Bosia and Tristan Simmonds).
- 2006 'Reciprocal Networks' and other content for a+u Architecture and Urbanism, special issue on Cecil Balmond & AGU, November 2006.
- 2006 'Building on the future', Building Design, 14 July 2006 (with Charles Walker).
- 2005 'Serpentine Pavilion', The Structural Engineer, 6 September 2005.

## **Emmanuel Vercruysse** ***Programme Director***

### **About**

Emmanuel is first and foremost a designer, with a deep interest in the relationship between drawing and making. He holds a BSc, Diploma and Masters Degree from the Bartlett school of Architecture, having previously studied furniture design in Belgium, and approaches design as a tacit process and as a series of translations between drawings and objects that oscillate between intuitive acts and precise operations. This approach to design combined with his in-depth knowledge of digital fabrication techniques means that he views the digital very much as an augmentation of the analogue, rather than a substitute and he continues to explore the production of architecture intuitively through iterations of drawing, craft and code.

Teaching is a critical part of Emmanuel's practice. He has taught Diploma Unit 23 at the Bartlett, UCL since 2007; a unit that places an emphasis on an interrogation of the processes involved in design thinking and the relationship between the made and the drawn. Emmanuel worked as a design fabrication tutor in the Bartlett workshops for 8 years and U23 has always been closely aligned with the Bartlett workshops as a research space, often using them as its unofficial studio.

Emmanuel was director of the CAD/CAM and robotic fabrication lab for 5 years, and under his management it developed into B<Made; the most advanced digital fabrication workshop in UK architectural education, which he orchestrated as a hands-on teaching facility. This, importantly for an educational workshop, involved putting in place a wide range of new course structures for teaching and research as well as appointing and training new members of staff. During his time running the workshop, Emmanuel acquired an integrated set of machinery and software systems in order to set up a suite of new facilities including; the CNC Lab with multi axis metal and timber CNC technology; the RobotLab consisting out of 8 robots with collaborative set-up and a laser cutting lab.

He initiated numerous interdisciplinary collaborations within UCL and outside - including a collaboration with UCL Geomatics and Faro Ltd. to acquire a 3D Scanner and subsequently to set up Scan-Lab Projects, a successful branch of the Bartlett Workshop, now run by two of his ex-students; Matt Shaw and Will Trossell.

Over the past few years Emmanuel has been able to shift focus towards much greater emphasis on directing teaching and research. Alongside running Unit 23, he took on a broader role as a senior teaching fellow in analogue and digital craft throughout the school with an emphasis on mentoring students in fabrication through hands-on workshops and short courses and the introduction of CNC and Robotics into first year.



Recently Emmanuel took up a set of leading roles at the Architectural Association, he is Co-Director of the Postgraduate Design + Make course based at the AA's satellite campus out in Hooke Park, addressing the challenge to position the campus at the forefront of Architectural Research through prototyping and large scale fabrication. By combining expert knowledge of traditional craft and cutting edge technologies the Design +Make course now operates as an agency of Architectural innovation and presents a unique and alternative vision for architectural education.

The roles of Director of the Robotic Fabrication Visiting School and Curator of Robotic Development allows for developing research areas within the cutting edge fields of Robotic Fabrication both in Bedford Square and at Hooke Park.

Emmanuel is involved in numerous collaborative practices and research groups, including art and architecture practice LiquidFactory; Field Robotics group RAVEN; the RIBA award winning experimental architectural practice Sixteen\*(makers); and robotic fabrication lab ProtoArchitecture. His current fabrication research projects include large scale robotic depositioning, Chainsaw Choreographies, exploring the potential of performative fabrication, robotic actuated rotational casting and CNC mold fabrication for aluminium and investment casting processes.

### Web

[designandmake.aaschool.ac.uk](http://designandmake.aaschool.ac.uk)

[liquidfactory.co.uk](http://liquidfactory.co.uk)

[ravenoperations.com](http://ravenoperations.com)

[bartlett.ucl.ac.uk](http://bartlett.ucl.ac.uk)

[sixteenmakers.com](http://sixteenmakers.com)

[roboticfabrications.aaschool.ac.uk](http://roboticfabrications.aaschool.ac.uk)

### **Education/Qualifications**

2013	Kuka Robotic Programmer Certification
2010	Multi Axis Machining MasterCam Certification
2009	Digital Machining CNC Mill Operator Certification
2007	Masters in Architecture [Distinction], Bartlett School of Architecture, UCL
2005	Diploma in Architecture, Bartlett School of Architecture, UCL, RIBA Part 2
2001	BSc Architecture [First Class], Bartlett School of Architecture, UCL, RIBA Part 1
1996	Diploma in Furniture Design. St. Lucas, Ghent, Belgium

### **Employment**

2015–	Co-Director of AA Design and Make at Hooke Park, The Architectural Association
2015–	Curator of Robotic Development, The Architectural Association
2015–	Director of Visiting School Robotic Fabrication, The Architectural Association
2015–	Media Studies Tutor, The Architectural Association
2015–	Senior Teaching Fellow in Analogue and Digital craft, The Bartlett School of Architecture
2007-15	Unit Master, MArch [RIBA Part 2] Unit 23, The Bartlett School of Architecture
2009-14	Fabrication Tutor + CadCam Manager, The Bartlett School of Architecture
2006-10	Fabrication Tutor + Metal Workshop Manager, The Bartlett School of Architecture
2006	BDP, London
2004-05	HKR, London
2002-03	Dirk De Meyer Architects, Ghent, Belgium
2002-03	Independent Furniture Designer/ Maker, Belgium
2001	Peter Barber Architects, London
1997- 98	Luc Van Hooreweder Architects, Izegem Belgium

### **Practice/ Research**

#### Robotic Fabrications Visiting School / Director

Robotic Fabrications is a series of architectural experiments which provides a hands-on introduction to the versatile world of robotics, merging expert knowledge of timber construction with cutting-edge robotic fabrication and 3D scanning technologies. The Visiting School aims to foster a critical approach towards design-through-making whilst maintaining a deep connection to the unique environment at Hooke Park.

### Raven; Robotic Field Operations/ Director

Raven Operations is a creative collaboration between LiquidFactory and robotic specialists undertaking field-robotics projects that operate in 'wild' sites outside the lab. Through sensor actuated robotics RAVEN explores gesture and performance in relation to dynamic site conditions.

### Liquidfactory / Director

A London based art and architecture practice operating in the territories between the written, the drawn and the made, to produce work that is often site-specific and landscape based.

### Protoarchitecture Lab / Project Leader

Research Lab exploring innovative robotic applications.

### Sixteen\*(Makers) / Member

Advanced Fabrication Research Lab where the Act of Making takes center stage and that operates between academia, practice and industry.

### Scanlab / Collaborator

Experiments with Lidar scanning, actively manipulating the hardware and the environment.

### PerFORM / Project Leader

Cross-disciplinary collaboration with the Royal Central School of Speech and Drama concerning the design and representation of adaptive and experimental spaces for performance.

## **Workshops**

2016	Robotic Fabrications; Chainsaw Choreographies Visiting School, AA Hooke Park
2016	Robotic Introductions, AA Hooke Park
2016	The Knowhow Series; The Cast and The Mold, AA Hooke Park
2016	The Knowhow Series; Heavy Metal, AA Hooke Park
2009–	Digital Fabrication Workshops, Tutor & Course Leader, Bartlett School of Architecture.
2015	Building the Spine'; Year1 Analogue and Digital Fabrication Technologies workshop
2014	Robot Week, CNC Milling Master-class, Institute of Making Engineering Department UCL
2014	Black Box, Design and make Workshop, École nationale supérieure d'architecture de Versailles
2013	Darwin (or) Bust, Robotic Machining Workshop. Institute of Making, UCL
2012	Aluminium Casting Workshop, Bartlett School of Architecture
2011-13	Leverhulme Trust Workshops in Digital Manufacturing, Bartlett School of Architecture
2006	Architecture Summer School tutor, KTH School of Architecture, Stockholm
2002	Design Workshop, St. Lucas School of Architecture, Brussels

## **Fabrication Research**

Robotic Fabrications; Chainsaw Choreographies  
Collaborative Robotic Depositioning  
Robotic Machining  
Fabricating 55/02, advanced steel fabrication  
Custom Built Tools  
Wood Composite Production  
Advanced mold Fabrication  
Investment casting  
CNC molds for aluminum casting  
Lidar Manipulation  
Robotic Film Technologies

### Collaborations within UCL departments

Slade School of Fine Art; Lidar scanning collaboration

Dept. Mechanical Engineering; machining strategies for parabolic reflector mold for a collapsible satellite compo-

nents

Dept. Naval Engineering; machining of experimental hull-prototypes for flow line testing

Dept. of Medical Science; machining of prosthetic components

Slade School of Fine Art; machining of complex geometries for metal casting

### **Exhibitions, Awards, Events + Publications**

- 2015 Raven; Robotic Field Operations, Performance and Art, Publication, MIT Press Journals
- 2015 Collaborative Robotic Depositioning, Research Grant
- 2015 Digital Crafting Network, AHRC Funding Proposal, Digital Fabrication Expert and Consultant
- 2015 8 Instruments of Greenwich, Longing and Belonging Installation, Royal Naval College Greenwich
- 2014 Longing and Belonging, Research Grant
- 2014 Rob|Arch2014 Instruction and Instinct, Conference, University of Michigan Taubman College.
- 2014 Materials & Society, Presentation, Conference, Institute of Making Engineering Department UCL
- 2014 Robot-Actuated Ceramic Casting, Research Grant
- 2014 U23 High Definition, Negotiating Zero Tolerance, AD High Definition, Publication, WileyPress
- 2014 RobotWeek, Robotic Applications, Presentation, Seminar, Institute of Making Engineering Department UCL
- 2014 Raven; Instruction and Instinct, Performing within Unordered Complexity, Robotic Fabrication in Architecture, Art and Design 2014, Publication, Springer
- 2013 Collisions, Installation and Performance, CSSD London
- 2012 '55/02', Sixteen \*(Makers) Project Monograph Sheil, B, Ayres, P, Calicott, N, Vercruysse, E. (Riverside Architectural Press) Monograph. 100 pages, 4 essays,
- 2012 Liquidfactory: Incisions in the Haze, AD reader: Manufacturing the Bespoke, Publication, Wiley Press
- 2011 RIBA award for 55/02 Building [with SixteenMakers]
- 2011 Table Prototype, Exhibition, Testbed1 Gallery, London
- 2011 Liquidfactory: Indeterminate drawings, Architects Sketchbook, Publication, Thames & Hudson
- 2011 Liquidfactory: Practice Profile, Design Ecologies, Journal, Vol. 1.
- 2009 Liquidfactory: Lady Be Good, Narrating Spaces, Exhibition, Chelsea College of Art and Design
- 2009 Diploma Work + Liquidfactory, Bartlett Designs: Speculating with Architecture, Publication, Wiley Press
- 2009 Liquidfactory: The Crepuscular, P.E.A.R. Magazine.
- 2008 Liquidfactory: The Crepuscular, AD: Proto-Architecture: Analogue and Digital Hybrids, Publication, WileyPress
- 2006-07 Liquidfactory: Art and Architecture Residency, Kielder Art and Architecture Partnership, Northumberland, UK

### **Guest Critic**

The Bartlett School of Architecture, The Architectural Association, London Metropolitan University, Royal College of Art, Oxford Brookes University, University of Nottingham, University of Westminster, Greenwich University, Chelsea College of Art and Design, Central St. Martins, St. Lucas Brussels.

## Zachary Mollica

### Course Tutor

#### About

Zac is a Canadian architect and maker whose work explores the integration of innovative digital methods alongside traditional craft knowledge. Zac completed his undergraduate studies at Dalhousie School of Architecture, and has since worked for a number of architecture and design practices in Amsterdam, Lunenburg, Toronto and Vancouver. Completing the Architectural Association's Design + Make programme in Hooke Park over the past two years, Zac led the development of the Tree Fork Truss within the Wood Chip Barn student project.

#### Web

designandmake.aaschool.ac.uk  
roboticfabrications.aaschool.ac.uk  
zacharymolli.ca

#### Qualifications

- 2014-16 MArch Design + Make. Architectural Association School of Architecture. London, UK. Degree awarded with Distinction
- 2009-12 Bachelor of Environmental Design Studies (BEDS). Dalhousie School of Architecture. Halifax, Canada.
- 2008-09 Foundation Year Programme. The University of King's College. Halifax, Canada.

#### Practice

- 2016- Course Tutor, Design + Make. Architectural Association. London/Hooke Park
- 2016- Tutor, Robotic Fabrications Visiting School. Architectural Association.
- 2016- Tutor, MakeLab Visiting School. Architectural Association.
- 2012-15 Designer. Novita Interpares. Toronto/Lunenburg, Canada.
- 2012 Intern Architect. NL Architects. Amsterdam, NL.
- 2012 Collaborator. Plant Architects. Toronto, Canada.
- 2011 Intern Architect. Measured Architecture Inc. Vancouver, Canada.

#### Publications

- 2016 'Tree Fork Truss: Geometric Strategies for Exploiting Inherent Form' with Martin Self. Paper published as part of 2016 Advances in Architectural Geometry conference.
- 2016 'Tree Fork Truss: An Architecture of Inherent Forms.' Thesis submitted in partial completion of the Architectural Association's MArch Design + Make programme.

## Charley Brentnall

### Make Tutor

#### About

Charley Brentnall has worked timber in construction since 1979; studied Ceramics and Three Dimensional Design at Bath Academy of Art; a member of Timber Framers Guild, ICOMOS, Ancient Monuments Society and SPAB; a past member of BWF British Standards committee. He is a founder and chairman of Carpenter Oak & Woodland Co. based in the UK, a specialist team which he built up to a turnover of £2.7m, employing 55 people on three sites. He is a past chair of the Carpenters Fellowship.

Award winning projects have covered small and intimate to large in scale and span. He works with a fascination for the material; and strives for high standards of design, craftsmanship and service. Conservation work has covered structures from 20<sup>th</sup> C industrial to the early medieval period. Operating on several continents gives a broad understanding and context of different cultural drivers and a range of practice including: conservation, design and construction consultancy forming teams specific for each project, managing them and their logistics in the UK,

developing world, and extremes of Antarctica. Predominately using home grown timbers, respecting the spirit of the materials in their natural form, finding a deep-seated enjoyment and fulfillment in the buildings that are created.

Currently Make Tutor at Hooke Park, The Architectural Association where he supervised The Big Shed and Timber Seasoning Shelter and others.

A visiting lecturer at several universities; and a regular contributor to courses and workshops. Since 1980 he has been running training-workshops with unskilled people to deliver highly skilled results. He is experienced in coordinating and supervising low-skilled teams on large-scale timber construction sites, including within an educational context. These projects include working with teams of school children on the Bedales School Theatre and the dining hall at Colerne Primary School; with architecture students he has supervised design-build workshops including Studio in the Woods.

## **Academic positions**

2010– Make Tutor, Design + Make Programme. Architectural Association London/Hooke Park.

## **Visiting Lectures**

University of Bath  
University of Cambridge  
University of Dundee  
University of York  
Oxford Brookes  
Studio in the Woods & Studio in the City  
Regional RIBA & RISA cpd's  
SPAB Technical Days  
Dartmoor Arts Week

## **Community & Educational Projects**

Sotherington Barn, Bedales School, Hampshire  
Olivier Theatre, Bedales School, Hampshire  
MSC schemes, Hampshire Historic Buildings Bureau & Hampshire Museum Service.  
Trebuchets, Castle Urquhart, Scotland  
Wynstones School, Gloucester  
Silkwood Barn, Westonbirt Arboretum, Gloucestershire  
Colerne Primary School, Bike Shelter  
Coker Rope & Twine Trust  
Jamie's Farm, Box, Wiltshire  
Penny Brohn Cancer Care Centre, Bristol  
School House Project, Burlington Danes Academy, White City, London  
Timber Seasoning Shelter, Hooke Park, Dorset

## **Practice**

### Notable UK projects

Olivier Theatre, Bedales School  
Hindu Temple, Neasden  
Amravati Buddhist Temple,  
Grid shells & Solar Canopy, The Earth Centre, Doncaster  
Charlton Court Barn, Sussex  
Windsor Castle Royal Kitchen Roof  
Stirling Castle, Great Hall Roof  
Maggie's Centre, Inverness  
The Big Shed, Hooke Park, Dorset

### International projects

Chappaquidick, Martha's Vineyard, U.S.A.  
Shackleton and Scott's Huts, Ross Sea, Antarctica

Stirrup House, Cape Town, South Africa  
Temi Community, Gremi, Georgia  
Kampong Pavilion, Singapore  
Le Potager Tower House, Vende, France  
Kinsol Trestle, Vancouver Island, Canada  
Richard Feilden Trust, Lake Bunyonyi, Uganda

## Dr Mark Campbell

### Thesis Tutor

#### About

Mark Campbell completed his PhD and MA as a Fulbright Scholar at Princeton University and BArch (Hons) and BA at Auckland University, New Zealand. His PhD focused on issues of aesthetic and psychoanalytic theory in the early-twentieth century and his current research examines the contemporary United States and China. Mark teaches at the Architectural Association, London, where he is Director of the Paradise Lost research cluster, a member of the PhD Committee, the MA Thesis Advisor on the 'Projective Cities' and 'Design + Make' postgraduate programs, the Director of the Diploma Histories and Theories Theses, and an Intermediate Unit Master. He is a Visiting Professor of Architecture at South-East University, Nanjing, and has also taught at the Cooper Union, Princeton University, and Auckland University, in addition to serving as the Managing Editor of Grey Room and the Cooper Union Archive.

#### Academic Qualifications

- |           |  |
|-----------|--|
| 2001-13   | Ph.D., Princeton University, 'A Beautiful Leisure: The Decadent Humanism of Geoffrey Scott, Vernon Lee, and Bernard and Mary Berenson'<br>Princeton University Honorary Fellowship (2001-03)   |
| 1997-2000 | Master of Arts (Hons), Princeton University:<br>Joseph Sanford Shanley Prize (2000), Distinguished Master of Arts in Architecture<br>The Butler Prize (1998/1999)<br>William J. Fulbright Graduate Scholar (1997-2000)   |
| 1990-94   | Bachelor of Architecture (1st Class Honors), University of Auckland:<br>Dual dissertation major in Design and History and Theory<br>Graduated Magna Cum Laude<br>Fowlds Memorial Scholar (1994), Most Distinguished Scholar in the Faculty of Architecture, Property and Planning<br>Senior Prize in Architecture (1994), Most Distinguished Graduate in Architecture<br>Cavalier Bremworth AAA Design Award, Top Student Design (1993/1994) |
| 1989-90   | Bachelor of Arts, University of Auckland.:<br>Dual major in English Literature and Geography.  |

#### Academic Positions

- |         |   |
|---------|---|
| 2014-   | Director, MPhil in Media Practices, Architectural Association, London.  |
| 2013-   | External Examiner:<br>- Department of Architecture, University of Cambridge;<br>- Welsh School of Architecture, University of Cardiff |
| 2010-16 | Director, Paradise Lost Research Cluster, Architectural Association, London.  |
| 2012-   | Visiting Professor of Architecture, M.Arch Program, South-Eastern University, Nanjing, China.   |
| 2013-   | Diploma Theses Coordinator & Supervisor (supervising all diploma theses), Architectural Association, London.                          |
| 2013-   | M.Arch Thesis Coordinator & Supervisor, Design & Make Programme Architectural Association.  |
| 2013-   | PhD Committee, Architectural Association, London.   |
| 2013-   | MA Thesis Advisor, Projective Cities Programme, Architectural Association.  |
| 2009-16 | Intermediate 1, 'Paradise Regained,' 'No Country,' 'Upstate,' 'The Passenger,' 'A New   |



- Miracle in the Desert,' 'The Lost Highway,' Undergraduate Unit Master, Architectural Association, London.
- 2012-13 'By Any Measure,' Diploma Seminar, Faculty Member, Architectural Association, London.
- 2010-12 'This is Not my Beautiful House,' Diploma Seminar, Faculty Member, Architectural Association, London.
- 2008-09 'Don't Look Now,' Diploma Seminar', Faculty Member, Architectural Association, London.
- 2006-08 'Modernist Narratives,' 'Dysfunctionalism in Twentieth-Century Architecture,' M.A. Postgraduate seminars, Faculty Member, Architectural Association, London.
- 2005-07 'The Architectural Dreamwork,' Diploma Seminar, Faculty Member, Architectural Association, London.
- 2001-03 Undergraduate Studio Tutor, Undergraduate Histories and Theories Lecturer, Adjunct Faculty, The Irwin S. Chanin School of Architecture at the Cooper Union for the Advancement of Science and Art, New York.
- 1998-2000 Undergraduate Writing Program (Thesis) Director, Undergraduate Studio Instructor, Graduate and Undergraduate Histories and Theories Preceptor, School of Architecture, Princeton University.
- 1995-97 Undergraduate Studio Instructor, Undergraduate Lecturer, Adjunct Faculty, School of Architecture and Elam School of Fine Arts, University of Auckland

### **Selected Academic Publications**

- 2016 'The Overlook', The Building (Lars Müller, 2016) Paradise Lost (AA Publications, 2016)
- 2015 'An Expanded Take on Media Practices', AArchitecture 26 (Architectural Association)
- 2014 "Unreal Estates,' Real Estates: Property and Ownership in Neoliberal Debt Economies (Bedford Press, spring 2014)  
'Blood Simple', AA Files 66 (Architectural Association)  
'All Work and No Play', AArchitecture 21 (2014)
- 2013 'Paradise Lost', AArchitecture 18 (Architectural Association)  
'The Passenger,' New Architecture (China)  
Guns, Household Objects, Road-Trip, Cars, Bodies, Acts of Devotion, TVs (Architectural Association)
- 2012 'Choice by Design,' POA 1-22 (Bedford Press)  
'Gleaming Toys,' VIA: Dirt (MIT Press)
- 2011 'Going Back to Greenville,' AA Files 62 (Architectural Association)
- 2009 'The Eye of the Beholder: Geoffrey Scott's View of History,' AA Files 59 (Architectural Association)  
'Soviet Space Power,' exhibition catalog, School of Architecture, Columbia University
- 2004 'Geoffrey Scott and the Dream-life of Architecture,' Grey Room 15 (MIT Press)
- 2000 'The Carpet Jungle: The Perverse Materiality of Elvis Presley's 9" Shag Pile,"  
The Pander 2 (Auckland University and RMIT)

### **Academic Editorial Positions**

- 2016– Editor, Journal of Architecture (RIBA & Routledge)
- 2009-11 Book Editor, Beyond Entropy (AA Publications 2011) ,Nine Problems in the Form of a Pavilion (AA Publications 2009), 'All Work and No Play,' AArchitecture (March 2014).
- 2013 Guns, Household Objects, Road Trips, Cars, Bodies, Acts of Devotion & TVs
- 2004-06 Written Communications Coordinator, Foster and Partners, London. Responsible for all written forms from haliographic articles to Design, Urban Design, Product Design, and Sustainability Philosophies.
- 2001-04 Managing Editor, Grey Room, New York. Responsible for editing and production of each issue from its inception to its completion; liaising between the Editorial Board, individual authors, translators, copy-editors, graphic designers, archival institutions, publication rights staff, our production press, and our parent press, the MIT Press.
- 2002-03 Publications Manager, Irwin S. Chanin School of Architecture at The Cooper Union. Responsible for the writing, editing, and publication of all scholarly material.

# Jeremy Ralph

## Seminar Tutor

### About

Forestry and timber professional with 15 years experience of forestry, sawmilling and supply chain development with expertise in business assessment, strategic and market development. Regular lecturing and teaching, market research, advice and brokerage of timber for architecture.

### Academic Qualifications

- 1999-2000 Msc. Forest Management, Aberdeen University
- 1994-96 City and Guilds Forestry
- 1990-93 B.A. (joint hons.) Archaeology and Geology, University of Bristol

### Professional Experience

- 2013– Director, Timber Strategies  
Consultancy offering advice and market intelligence for timber manufacturing, forestry and timber using businesses. Current work includes timber product development, market & investment analysis; timber quality assessment; strategic supply chain development; national and regional policy development; teaching at schools of architecture and land-use universities.
- 2012– Estate, Facilities and Development Manager, Architectural Association, Hooke Park:  
Management of the 150ha forest estate and campus facilities in Dorset  
Development of collaboration with timber research groups and business to progress innovative timber use in construction
- 2007 Helsinki Wood Studio 2007 Two month summer Design and Build school based at the Aalto University.
- 2003-13 Technical Advisor, Silvanus Trust:  
– Investment advice to forestry and timber processing businesses. Management, on behalf of the private investors, of Phd research work undertaken at the University of Bath on the Structural Properties of Douglas fir. Commissioning of research including timber availability and resource assessment, state of the industry reports and market assessment.  
– Management of Building with Wood, an initial conference and continuing series of technical seminars aimed at timber users, designers and specifiers.
- 2010-12 Nuffield Scholar Nuffield Farming Scholarships:  
“Maximising Timber Value for Woodland Owners in England”  
Global travel to investigate: technological developments in small-scale processing, manufacture of engineered timber on small-medium scale, marketing against global supply, investment and investor relations.

### Research

- 2014 Cellular properties of thermally modified ash – industry research
- 2013 Oleoresin derivatives from Scots Pine – industry research
- 2012 Maximising Timber Value for Woodland Owners in England - Nuffield Trust
- 2009 Structural properties of UK grown Douglas fir – PhD industry supervisor
- 2007 Wood Culture/Building with Wood – research and project management



## Kate Darby

### Visiting Tutor

#### Academic Qualifications

2006	Architectural Association ARB/RIBA Part 3
1995-97	Architectural Association AA Diploma RIBA Part 2 Awarded Holloway Trust Fund Prize 1997
1991-94	Bartlett School of Architecture RIBA Part 1 BSc (Hons) Arch First Class Awarded Donaldson Medal 1994 Herbert Batsford Prize 1992
1984-87	University of Bristol BSc(Hons) Philosophy and Economics Second Class Honours (First Division)

#### Academic Positions

2012–	WSA, Cardiff University Unit master in 5th yr Architecture MArch
2010–	Architectural Association Tutor in the Design and Make Programme
2006–	Studio in the Woods Group leader, founder member
2007-09	University of Bath MArch 2 Design Tutor
2005-06	Bartlett School of Architecture Unit 4 Master
1999-2001	Bartlett School of Architecture First year tutor
1998	Architectural Association Summer School Tutor
1997	Architectural Association First year teaching assistant.

#### Practice

2008–	Kate Darby Architects Principal
2003-08	Gianni Botsford Architects
1999-2003	David Connor Design, London
1998-9	Cabinet Digard, Frejus, France
1994-5	Apicella Associates, London
1989-91	Robin Broadbent Photographer, Studio assistant and apprentice in the art of studio lighting.

## Toby Burgess

### Visiting Tutor

#### About

Toby Burgess currently teaches two Architectural Masters courses at two London Universities, with a focus on the funding and delivery of student led designs, previously coordinating London Metropolitan University's entry in the Solar Decathlon Europe 2012, winner of the Royal Institute of British Architects Silver Medal 2012 for best student project worldwide, and managing delivery of two student architectural installations at Burning Man festival 2013. Across this spectrum of tutoring the themes of environmental design, digital analysis, formal generation and fabrication are his main areas of research.

#### Academic Qualifications

2008	AA Diploma, RIBA II: Full scholarship, Honors nominated: Architectural Association, London
2006	BA (hons) Architecture, RIBA I: 1st Class Honors: London Metropolitan University, London
2005	BA (hons) Spatial Design: 1st Class Honors: Chelsea College of Art and Design, London
2003	Btec certificate in Interior Design: Distinction: Chelsea College of Art and Design, London

#### Published

2016	The Rise of the Entrepreneur Maker co-authored with Arthur Mamou Mani, AD Magazine. RIBA Education Journal 201: Shipwreck and Fractal cult installations.
------	--

- TEDx talk. Black Rock City, Nevada: The Architecture of Joy with Arthur Mamou Mani.
- 2011 Biomimicry in Architecture, Michael Pawlyn, p48-49, RIBA Publishing, London.
- 2009 Digital Architecture, Passages Through Hinterlands, p86-87, Pub London
- 2008 Environmental Tectonics: Forming Climatic Change, p23-25, p45-47, AA Publications, London
- 2007 AD Magazine Dec 2007, p154-157, Steve Hardy; Forming Climatic Change

### **Academic Positions**

- 2014–16 Lecturer, Design + Make programme. Architectural Association
- 2011– Diploma Studio 10 Unit Master, Westminster University: Leading design studio DS10 on the RIBA II accredited Masters course in collaboration with Arthur Mamou Mani.
- 2010-13 London Metropolitan University: Associate lecturer. Masters course MA in digital design systems, Diploma unit04, as well an elective module in Advanced Digital Design Techniques.

### **Practice**

- 2008-10 Part II Architectural Assistant, Grimshaw Architects, London
- 2006-08 Part I Architectural Assistant, Gianni Botsford Architects, London
- 2005-06 Associate lecturer, Chelsea College of Art and Design, London
- 2002-06 Freelance furniture designer, part time, Self employed, London.
- 1999-2002 Assistant set designer, Smash Box Productions, New York City







