M.Arch (Architecture & Urbanism)

2019 – 2020 COURSE GUIDE

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Master of Architecture (Architecture & Urbanism) Programme

AADRL DESIGN RESEARCH LAB
GRADUATE DESIGN PROGRAMME

Programme Site: http://drl.aaschool.ac.uk

September 2019
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On behalf of the faculty of AADRL I would like to take this opportunity to welcome you to the Architectural Association. The DRL remains at the forefront of design experimentation over the last twenty years, pioneering advanced methods in design, computation and manufacturing. Beyond representation the lab is an evolving framework exploring three-year research cycles that interrogate architecture and urbanism from the city scale to the nano-scale. Led by leaders in the field of architecture, design and engineering the AADRL pursues innovation and interdisciplinary design that has also been recognised in many fields outside of architecture fostering collaborations with companies the likes of Ferrari, Festo, AKTII, Reider, and Odico Robotics. The lab remains a space to foster invention, collaboration and curiosity actively developing the next generation of architects that will actively participate and influence the field. Distinguished graduates have gone on to found world-renowned offices, lead advanced research groups and have become educators leading programs. Building on our rich history and exploration of computational methodologies and prototypical material-based design systems we are pushing research into complex domains of ecologies of machines and the everyday. The aim is to examine intimate correlations and interactions of design that explores biology, machines and material life-cycles through behaviour. The work will investigate architecture as an instrument engaging both material and social forms of interaction. We will examine the future of work, culture and living as we seek to push the boundaries of an expanded enquiry of design within the everyday.

Behavioural, parametric and generative methodologies of computational design are coupled with physical computing and analogue experiments to create dynamic and reflexive feedback processes. New forms of spatial organisation are explored that are not type- or site-dependent but instead evolve as ecologies and environments seeking adaptive and hyper-specific features. This performance-driven approach seeks to develop novel design proposals concerned with the everyday. The iterative methodologies of the design studio focus on the investigations of spatial, structural and material organisation, engaging in contemporary discourses on computation and materialisation in the disciplines of architecture and urbanism.

Joining me this year is a distinguished faculty of practitioners that includes Patrik Schumacher and Shajay Bhoosan who will carry forward their respective studio projects. David Greene is part of the staff as course master. In addition to our studio masters the DRL has a diverse supporting faculty that includes Ryan Dillon, Mostafa El-Sayed, Pierandrea Angius, Aposotlos Despotidis, Alicia Nahmad Vasquez. A team of internationally distinguished engineers, Albert Williamson-Taylor and Ed Mosely supports the design research of the AADRL.

Throughout 2019-2020 a distinguished class of visiting critics will join us to assist in critically evaluating and situating our design motivations. During 2019-2020, many leading architects, critics, theorists and technical consultants from the UK, Europe and around the world visited the DRL as guest jurors, lecturers and workshop critics and we look forward many more visitors this year. Final jury critics over the years have included the late Zaha Hadid, Rem Koolhaas, Jeff Kipnis, Wolf Prix, Ali Rahim, Marta Male-Alemany, Alisa Andrasek, Winka Dubbeldam, Araine Koek, Michael Hansmeyer, John Frazer, Ben Van Berkel, David Ruy, Hernan Diaz Alonso, Tom Wiscombe, Caroline Bos, Mark Cousins, Marcelo Spina, Peter Testa, among others.

This Course Guide provides a brief overview of the course structures and activities for the 2019-2020 academic year of the AADRL, outlining our overall Course Structure, Organisation and Contents. We have included syllabuses for our seminars and briefs for this year's Design Workshops and Studios, which are all carefully designed to maximise this year's design agenda. An academic calendar describes the main events planned for this academic year. Course tutors at the beginning of design studio and workshop courses will give out more detailed project briefs. In addition to this course guide, full descriptions of resources at the AA are documented in the Student Handbook, which outlines the AA's Library, Computing, Workshop, Prototyping and Digital Photo facilities. The AA's pastoral care and support structure are also summarised in the Student Handbook.

For information related to the larger school community, all students should consult the AA 2019-2020 School Prospectus and the AA School Academic Regulations, as well as those of the other Graduate School Programmes. Our website, www.aaschool.ac.uk/aadrl/ serves as the online extension of the programme, with archived documents of all of our previous research projects and ongoing studio activities. We very much look forward to work with you this year in the DRL as we continue to explore and push architectural design into progressive futures.

Theodore Spyropoulos
AADRL Director
September 2019
Introduction & Overview
Introduction

The MArch (Architecture & Urbanism) at the AA is a post-professional M(Arch) graduate design programme at the Architectural Association School of Architecture, in London. The MArch programme also has been known both internally at the AA, as well as to the worldwide architectural and academic community as the AA Design Research Laboratory, or AADRL.

The MArch (A&U) is a studio-based design course teaching advanced architectural design. The programme awards a MArch (Architecture & Urbanism) Master of Architecture in Architecture and Urbanism degree. The degree award, like other graduate programme degree awards at the Architectural Association, is validated by the Open University (OU), which in turn is subject to audit and scrutiny by the British Quality Assurance Agency for Higher Education (QAA) in the UK.

The MArch (A&U) is a studio-based, full-time, graduate design course. Each year it attracts young architects from around the world, who come to the course to attain further post-graduate education in advanced architectural design and the relationship of architectural design to contemporary urbanism and urban settings, including knowledge of and skills associated with the making of innovative architectural design projects.

The programme attracts a diverse international student body. With nearly 100% of its staff and graduates originating from overseas during its first six years, the MArch (A&U) is one of the world’s most international graduate design programmes. During 2015-16, students in the programme originated from more than thirty different home countries, coming to London and the Architectural Association in order to participate in the school’s renowned cultural life and commitment to challenging and innovative architectural education.

Course Name & Aims

The internationally recognised name of the course, since its inception in 1997, is the AADRL Design Research Laboratory. The MArch (A&U) emphasises the teaching and learning of knowledge and skills associated with the making of comprehensive, innovative, architectural design projects, in a team-based studio environment. The course emphasises the teaching of a deep understanding of the relationship between architectural design projects and urbanism, including their contemporary urban settings.

The name of the course, the AADRL Design Research Lab, was selected at the time of the founding of the M(Arch) programme thirteen years ago. The course’s name denotes the programme’s overall orientation, aims and organisation in relation to the contemporary field of architectural design and more specifically to other graduate design programmes, which is its immediate academic and professional context. The programme aims to prepare its students for future careers as architectural designers and as future teachers of architectural design and the name of the course draws attention to the unique ways it pursues this aim.

By inclusion of the words ‘design research’ in the programme’s name, the AADRL seeks to emphasise, within the context of other post-graduate design education settings, its unique, team-based, highly-networked, approach to the teaching and learning of architectural design as a rigorous and analytic form of shared, communicable, design experimentation and results. The inclusion of the word ‘laboratory’ reinforces how the programme openly treats its design studio spaces: as settings for team-based, shared, design experimentation; into new, as-yet unknown, architectural projects, forms, programmes, design tools, systems, and results. As all publicity associated with the programme’s name also includes mention of the programme’s OU-validated MArch degree award (the recognised degree award-type associated with graduate design education worldwide), the AADRL avoids any potential confusion stemming from its use of the word ‘research’ in its name.

Like other graduate design programmes, the MArch (A&U) is a studio-based course; it differs from many of these other programmes in the way in which its studio spaces are used and treated in the programme’s teaching, learning, student work, and curriculum structure. Rather than promoting highly individuated, personal, forms of architectural ‘creativity’ that emphasise students’ imagined differences between themselves and all other architects or designers (which might be the emphasis at other graduate design programmes) the MArch (A&U) seeks instead the pursuit of design projects undertaken in team-based, shared, and
highly-collaborative forms of architectural design. This is a central feature of the course, related to the programme's aim to more closely approximate contemporary, highly collaborative, design practices than do many traditional graduate design programmes. This team-based orientation of the programme stems also from the Architectural Association's recognition of the programme's nearly 100% overseas student intake, which creates in the MArch (A&U) a unique demand for bringing together a diverse, highly qualified, student body of highly differing previous academic and professional experiences related to architectural design gained by students in their home countries. The team-based approach of the MArch (A&U) challenges individual students to confront and negotiate their experiences, interests and objectives with the equally-relevant, differing, experiences and understanding of their team-mates.

The Programme's course name thus seeks to draw attention to this collaborative design approach, as a way of giving the programme an identity, relative to the international market of other graduate design programmes, which is consistent with its overall aims and features. A greater understanding of how this name relates to the programme and its overall aims and objectives is further explained in the remainder of this Section of the programme document.

Degree Award
The programme awards a M.Arch (Architecture & Urbanism) Masters of Architecture in Architecture and Urbanism degree, validated by the Open University. The M.Arch degree is the internationally recognised post-graduate degree title awarded by graduate design programmes at schools of architecture throughout the world. The course has been organised so as to accomplish the overall aims associated with a MArch degree course.

The Architectural Association is approved by The Open University as an appropriate organisation to offer higher education programmes leading to Open University validated awards.

The MArch (A&U) and the Architectural Association made application to the Open University Senate for creation and approval of the M.Arch degree title, which the course was designed to award. The M.Arch degree title was approved and first granted to the class of 2000, which began studies in September/October 1998. Prior to this the first graduating class of the MArch (A&U), which began studies in September/October of 1997, received an MA (Architecture and Urbanism) award; given during the period when the OU Senate and OUVS were reviewing and approving the creation of an M.Arch degree award title, which was then approved as the degree title awarded by the programme. Prior to that class, students completing the programme's predecessor, non-validated, programme (called the AAGDG Graduate Design Group) received an AA Graduate Diploma.

Organisational Summary: Permanent and variable course content
The M.Arch (Architecture & Urbanism) studio-based programme is completed during a sixteen-month period, and is only offered as a full-time course leading to the M.Arch (Architecture & Urbanism) degree award. The programme is arranged as (12, 11, 9 or 13) week terms. There are 45 total study weeks divided between the four terms. The first three terms (beginning in September/October and finishing the following June each academic year) constitutes Phase I, or the Core Phase, of the two-phase programme. Term 4 (beginning the following September/October and finishing the following January) constitutes Phase II, or the Candidacy Phase, of the programme.

Each of the four terms of study in the programme is further divided into individual courses, called modules. Each of these modules is assigned course credits depending upon its workload during the academic term. Students are required to successfully pass all course credits in the programme's compulsory and designated modules, and are required to successfully pass all Phase I Core Phase, course credits in order to successfully pass into Phase II, the Candidacy Phase, of the programme beginning the following September/October.

The programme's course and credit structure, which is unchanged from the year of the founding of the programme and its original validation by the OU, is explained in detail in a following section of this programme document.
The permanent, year-to-year, aspects of the programme include a combination of its structure and study module course content. An unchanging combination of design studio, design workshop and thesis design studio courses form the core of study in the programme. Design core seminars form another permanent part of the programme content and structure and are consistently offered year-to-year. The topic, aims and areas of teaching and learning in these design core seminars are permanent features of the programme. The module syllabuses for these courses include a summary of the module title, aims, requirements, schedule, expected learning outcomes and assessment criteria as well as essential and variable / recommended course readings and will be presented in the following sections of this Course Guide.

The variable component of the programme has to do with additional course readings in design core seminars (which vary slightly year-to-year depending on minor changes to class session topics) as well as specific design elective seminars and project briefs in the programme's design studio and workshop modules, which are used for the focus of that year's design teaching and learning. Information regarding these modules is provided in the form of module syllabuses for the design elective seminars and project briefs appended to design studio, design workshop and thesis design studio module syllabuses included in this Course Guide.

All teaching and learning in the programme emphasises the making and critical evaluation of architectural design projects, undertaken in the programme's dedicated studio spaces by students working in small, self-organised, student design teams responding to tutor-led design studio and design workshop modules. These modules dominate the curriculum of the programme, and are used to teach, learn, and synthesise a wide range of problem-solving design knowledge and skills. In terms 1 & 2 the programme's design seminars provide necessary theoretical and historical introduction and elaboration of the design topics, techniques and thinking associated with and expected as outcomes of the design studio and workshop courses. This is a permanent feature of the programme's course structure and content.

The MArch (A&U) shares a broad emphasis on the making of design projects with the world's majority of graduate design and architectural programmes (which also pursue the making of design projects), as this is the accepted method for both teaching and learning architectural design recognised by today's architectural profession. Within this context a unique and permanent year-to-year feature of the programme is its emphasis on team-based, shared, forms of both teaching and learning. This team-based approach, described below, is a founding feature in the design of the programme thirteen years ago, and remains central to all aspects of its overall aims and objectives.

**Aims & Objectives**

An initial introduction to the aims of the programme, which situates the MArch (A&U) in relation to its larger graduate academic and professional setting, is provided in Section above. This Section outlines the main aims and objectives of the programme in relation to its degree award, as a MArch (Architecture & Urbanism) graduate design programme. The programme aims to develop the learner's interest, knowledge and skill of contemporary architectural design, including the relationship of contemporary architectural projects and spaces to urbanism and urban settings. Emphasis is placed upon learning advanced design concepts, skills and knowledge related to the making of architectural design proposals, in a team-based studio setting using advanced design tools. Particular emphasis is placed on the development of innovative, new, kinds of architectural design projects that challenge contemporary design practices, projects and their discourses.

Like all graduate design programmes the programme is a studio-based course of study, where the principal form of learning is assumed to the experience gained from the student's active participation in the making of design proposals. The programme's design studio and workshop courses are taught in its dedicated studio spaces, which are the setting for pursuit of the programme's main aims and objectives. The principal aim of the programme is students' learning gained through the making and evaluation of design proposals. The expected learning outcome includes the student's acquisition and demonstrated abilities relating to forms of knowledge and skills associated with architectural design. This aim and expected outcome is achieved through teaching and learning strategies that lead to a student's
further development of these forms of knowledge and skills. An important additional aim and objective of the MArch (A&U) is to better emulate the real working conditions of today’s highly networked, collaborative, and multi-disciplinary design teams, so as to better relate a post-professional graduate design educational setting to its immediate professional context. The programme pursues this aim in the form of its programme structure, teaching and learning strategies. The central feature of the programme to enable it to achieve this aim is its organisation of the majority of its teaching and learning around small, self-organised, design teams that collaborate on the making of comprehensive design projects.

Despite its short institutional history, the MArch (A&U) programme is already internationally recognised as having pioneered an emphasis in graduate design education on team-based, research-oriented, forms of post-graduate design teaching and learning, the results of which have been published, exhibited and presented internationally. The innovative team-based aspect of the programme has been emulated during recent years by other graduate design programmes throughout Europe and abroad.

By actively promoting highly collaborative, network-based, learning methods, technologies, and ways of thinking that allow for both new kinds of architectural projects, and new ways of undertaking architectural design projects the programme aims to develop critical forms of knowledge needed in order to better understand new challenges and kinds of architectural projects and design techniques made possible by today’s most advanced design technologies, including today’s proliferation of digital design and production systems, electronic networks, and code-based software applications.

Accordingly, an additional aim of the programme includes its engagement of today’s most advanced design tools and systems in its teaching and learning of architectural design, including the use of networked software modelling and design applications, programming techniques, associated peripheral devices, operating software and hardware that allows design projects to be linked to their designers’ design tools in fundamentally new and significant ways. While the use of these and other design technologies is not the programme’s central aim and objective, their engagement by students in the programme provide an important means for it to engage some of the most challenging features of all design disciplines today, which are being profoundly affected by a recent proliferation of new design systems and technologies.

Team-based Teaching & Learning

One of the most distinguishing and innovative features of the programme is that nearly all of its design studio, design workshop and design seminar course work is pursued by students as part of small, self-organised, design teams. Unlike most other post-professional graduate design programmes worldwide, the MArch (A&U) is committed to group-oriented and team-based forms of learning and teaching, creating an environment that better approximates the realities of today’s team-based design professions.

Today’s highly distributed and networked digital design tools and their processes make vital the need to create teaching and learning environments, in both academic as well as professional settings, able to capitalise on the unique potentials available in these systems. The advanced forms of digital design and modelling that are central to the MArch (A&U)’s design studios demand close attention on the part of their designers to the many kinds of workflows connecting the array of design technologies, through which, increasingly, design projects are developed.

Too often graduate design programmes are still modelled on outdated forms of isolated, individual, design practise and ‘creativity’, whereby individual designers seek to artificially distance themselves, including their design methods, theories and design results, from the work of their peers. The MArch (A&U)’s team-based approach seeks instead to instil new design procedures, standardisation and real forms of information exchange within global architectural design practises and their discourses. The global student body of the programme creates a unique learning environment for exploring the potential of today’s highly distributed, collaborative, forms of design.

This emphasis on team-based approaches extends to the programme’s teaching strategies, which stress a coordinated
approach to the teaching of individual courses, or study modules, in the programme. While individual course tutors are still responsible for leading the various study modules and their specific design interests and goals are outlined in project briefs stipulating the details of projects developed in design studio and workshop modules, the overall design agenda and orientation of the various design studios, workshops, and seminars is coordinated and communicated through a design agenda included in this annual Course Guide.

Additionally, all teaching staff come together to attend key interim and final presentations of design projects, offering further opportunities to clarify and coordinate the overall direction of project outcomes.

International Student Intake
An important feature of the programme is its international student body. During the first six years nearly 100% of the course participants have come to London and the Architectural Association from overseas – making the MArch (A&U) the world’s most international graduate design programme.

The international student body of the programme is an important backdrop for the various ways in which a dedicated design studio is used, as the centre of all teaching and learning in the Course. The team-based organisation of design studio work requires that individual students regularly and consistently attend the studio to support the group-based design work. This setting further heightens the need by individual students to confront and negotiate the national and regional differences between the backgrounds and experiences of individual team members, creating a condition within the educational setting that better prepares students for the realities faced in today’s team-based design practices.

Digital & Distributed Design Systems
Another distinguishing feature of the programme is its utilisation of advanced digital, networked, design tools by all of the design teams working on Design Studio and Workshop projects. The use of these shared tools serves a number of strategic purposes central to the programme’s aims; including: pursuit of collaborative design research, which undertaken today across the inherently collaborative, emergent, electronic networks and domains connecting the multi-disciplinary members of individual design teams; addressing the real technologies shaping questions about the relationship between new design tools and thinking today; training in vital skills for the use of new and significant design systems.

The programme teaches the use of digital tools and systems, including CAD modelling programmes, scripting and programming techniques for controlling these models, and various devices for linking different applications, software domains and output devices for making project documents, images, animations and models. The basic skills associated with these design systems are the basis for the programme’s key learning processes, which seek to synthesise new skills with new forms of knowledge and critical thinking associated with today’s networked design systems.

Learning Processes
The main learning process in the programme is the making of comprehensive architectural design projects, undertaken in the programme’s Design Studio and Design Workshop courses.

Design Workshop courses are shorter term, usually sequential, design projects undertaken at the beginning of Phase I of the programme. Design Studio courses begin in term 2 and continue to the end of Phase I and II of the programme; these are longer-term, more complex, design projects developed in tutor-led courses. An important secondary learning process is the reading and critical evaluation of design projects, writings and documents in the programme’s design seminars. Both of these learning processes consists of a combination of regular course participation, during which design projects are developed, evaluated and presented, and final course submissions, in which all project results are documented.

The aims, expected learning outcomes and assessment criteria of the programme’s study modules, including a detailed description of learning processes, is included in the individual module syllabuses included in Section ‘Syllabi & Project Briefs’ of this course guide. The curriculum map included in the programme specification of this definitive programme document summarises learning outcomes in relation to the various forms of knowledge and skill attained in the programme. Course submissions form the basis for the programme’s learning processes, and are formally assessed.

Additional learning processes in the programme include the student activities that are a feature of student life in the programme and the school, including: attendance at class sessions during presentations of design projects by other design teams in the programme; attendance at design tutorials between course tutors and other design teams in the programme; attendance at design presentations by students in other parts of the graduate and undergraduate programmes; attendance at public evening lectures by visiting scholars and architects; visiting the school’s regular programme of exhibitions and symposia; and use of the schools main educational facilities, including its library, slide library, materials workshop, computing lab, audio-visual lab, and other facilities. These and other activities constitute additional learning processes during the programme, and are normally expected of students in the programme, but are not formally assessed.

London Focus
Another important focus of the programme during the first ten years, since its founding and original validation, is that all design studio and thesis design studio modules in the programme include project briefs for projects that are sited in the greater metropolitan area of London. The purpose of this restriction of the potential projects forming the core of design studio results is that it allows the work of the programme to become focused; on the living, existing, design challenges of London, the programme’s home setting. This has allowed the cumulative work of the programme to effectively focus and constrain its design investigations, allowing it to both build an archive of creative design proposals engaging the contemporary city, and provide project briefs that include clients, sites and other details that are directly observable by students participating in the programme.

The social and spatial changes continuing to transform London make the city one of the world’s most vibrant, multi-cultural, urban settings. As the home of the MArch (A&U), as well as the destination for an international student body of participants who have come to London specifically to study at the Architectural Association, the London focus of design projects and associated research helps give the programme a unique identity and the
design results of the programme’s studio and workshop courses added validity and reality, for providing the means by which to test the relation between a post-professional academic setting and its immediate, actually existing, urban environment. In the twelfth year of the MArch (A&U), we introduced a new approach to design studio briefs, within the three year Parametric Urbanism agenda, which has as its focus, four sites located on four continents. This shift is an important one, and it reflects both the international make-up of the student body and the impact of the MArch on international architectural culture over the last decade.

Entrance Requirements & Procedures
Entry requirements for the programme are outlined in the school’s Graduate School Regulations, the AA website application link. Normally, applicants are required to have a first five-year BArch (Bachelors of Architecture) Degree, or professional degree or diploma equivalent.

Applicants complete a Graduate school application form, include payment for application processing, and submit the application with a design portfolio showing previous professional and academic design experience. Prior professional experience is not required, but preferred. Admission to the programme is competitive and the number of spaces available is limited each year; preference is given to applicants whose application and design portfolio demonstrate strong design skills and knowledge and whose written statement accompanying the application, and letters of reference, indicate intellectual potential, clarity of purpose, and maturity.

Potential applicants correspond with the Graduate School Admissions Coordinator regarding questions about how and when to make applications. Potential applicants are encouraged to visit the school and meet with programme directors. Personal interviews are not required, but encouraged.

All applications are reviewed by Programme Directors and assessed by a further member of the Graduate School staff before a decision is made regarding admission. Decisions are normally communicated to applicants within a month of receiving an application. Late applications are considered throughout the academic year, as long as places remain available for the upcoming year.
Proto Design 3.0  
MArch (Architecture and Urbanism)  
Director: Theodore Spyropoulos  
Founder: Patrik Schumacher  
Course Masters: Shajay Bhoosan, David Greene  
Programme Coordinator: Ryan Dillon  
Course Tutors: Pierandrea Angius, Aleksander Bursac, Apostolos Despotidis, Mostafa El-Sayed, Evangelia Magnisali, Alicia Nahmad Vasquez, Klaus Platzgummer  
Technical Tutors: Albert Taylor, Ed Moseley

Design Research: Experimentation and Innovation (v.20)
The Design Research Laboratory (DRL) is a 16-month post-professional design research programme leading to a Masters of Architecture and Urbanism (MArch) degree. For the last 20 years the world-renowned lab has been at the forefront of design experimentation, pioneering advanced methods in design, computation and manufacturing. The lab is based on an evolving framework of three-year research cycles that interrogate architecture and urbanism from the city scale to the nano-scale. Led by innovators in the fields of architecture, design and engineering, the AADRL pursues an interdisciplinary design approach that extends beyond architecture, fostering collaborations with companies such as Ferrari, Festo, AKTII, Reider and Odico Robotics. The lab remains a space of collaboration, curiosity and space and looks to develop the next generation of architects who will actively engage with and influence the field. Distinguished graduates have gone on to found offices, lead advanced research groups or teach at schools worldwide.

Course Structure
Four terms of study are divided into two phases. Phase I, a three-term academic year beginning each autumn, introduces design techniques and topics through a combination of team-based studio, workshops and seminar courses. In Phase II, which begins the following autumn, teams develop their Phase I work into comprehensive design thesis projects. At the end of January these projects are presented to a panel of distinguished visiting critics who in the past have included Zaha Hadid, Rem Koolhaas, Jeff Kipnis, Wolf Prix, Ali Rahim, Marta Male-Alemany, Alisa Andrasek, Michael Hansmeyer, John Frazer, Ben Van Berkel, David Ruy, Hernan Diaz Alonso, Tom Wiscombe, Caroline Bos, Mark Cousins, David Greene, Marcelo Spina, among many others.

Phase I Design Research Agenda:
Constructed Agency (v.3)
Our current agenda, Constructing Agency, explores expanded relationships of architecture by considering the future of living, work and culture. The aim of the research is to expand the field of possibilities by exploiting behaviour as a conceptual tool to synthesise the digital and material worlds. Advanced computational development is utilised in the pursuit of architectural systems that are adaptive, generative and behavioural. Using the latest in advanced printing, making and computing tools, the lab is developing work that challenges today’s design orthodoxies. Architectures that are mobile, transformative, kinetic and robotic are all part of the AADRL agenda, which aims to expand the discipline and push the limits of design within the larger cultural and technological realm.

Phase II Thesis: Design Research Agenda
Constructed Agency (v.2)
Future Culture
Theodore Spyropoulos’ studio explores how behaviour-based design methods can be used to reconsider cultural projects for today through the development of self-aware and self-structuring practices that see architecture as an infrastructure to address latency and change.

Future Work
Agent-based Parametric Semiology, Patrik Schumacher’s studio, contributes to the ‘semiological project’ which promises to upgrade architecture’s communicative capacity within the work environment and thus the social functionality of the designed/ built environment, through designed architectural code that manifests itself via crowd-modelling of the agent’s behavioural rules.

Future Living
Shajay Bhooshan’s studio, House.Occupant.Science.Tech.data (HOSTd), explores robotic fabrication while enabling mass-customisation strategies that can compete with contemporary co-living models in highly productive cities. The promise of mass-customisation integrated with new models of housing now allows for the generation of a vibrant community fabric.
Phase I Thesis Design Studio: Constructed Agency
Shajay Bhooshan, Patrik Schumacher, Theodore Spyropoulos

Four design studios will continue to challenge the notion of the design project driven exclusively by contextual and programmatic parameters. Each studio will introduce a specific arena of design concepts, tools and intended outcomes, ranging from prototypes of urbanism, architecture and detail systems. This body of initial design research work will be carried forward to Phase II in 2019/20, and applied to a series of specific briefs and sites for each studio.

Phase I Design Workshops:
Material Behaviour
Mostafa El-Sayed, Shajay Bhooshan, Alicia Nahmad Vasquez, Apostolos Despotidis

Term 1
Term 1 begins with two sets of three design workshop modules that emphasise computational and material prototyping as both an analytical methodology and the prime mode of design production and representation. Each five-week module focuses on a specific set of methods and an intended design output, introducing students to a range of concepts and techniques that can be further developed in the year-long Phase I and Phase II studio projects.

Phase II Thesis Design Workshop:
Adaptive Systems and Structures
Theodore Spyropoulos, Patrik Schumacher, Mostafa El-Sayed, Shajay Bhooshan, Pierandrea Angius, Alicia Nahmad Vasquez

Term 1
This five-week workshop at the midpoint of Phase II addresses a detailed aspect of the spatial, structural, material and environmental systems of each team’s thesis project. The workshop emphasises modelling techniques that can feedback into the testing and development of larger-scale proposals. A presentation in November will serve as a major interim review.

Design as Research, Term 1
Theodore Spyropoulos
Pursuing design as a form of research raises a series of questions that relate to larger technological, economic and cultural contexts. The seminar will explore ways of associating design with forms of research and the implications of using this methodology in architectural and design practice. An overview of computational approaches to architectural design, strategies and processes will complement the seminar. Weekly readings on software technologies and design systems will survey computational work in art, music, new media, science and other aspects of contemporary architectural discourses. Teams will make weekly presentations related to the readings and provide analyses of selected projects.

Conceptualising Computing
Mostafa El-Sayed, Term 1
This seminar offers a foundation in the contemporary history of design computation, tracing the field from the deployment and conceptualisation of computational logics and strategies relative to design objectives.

Synthesis: Project Submission, Writing & Research Documentation
Alexandra Vougia, Klaus Platzgummer, Terms 1 & 2
In weekly sessions students will review the basics of writing and research related to course submissions. Presentations will cover resources in London and beyond, the preparation of thesis abstracts, writing styles and issues related to essays, papers and project booklets. Regular tutorials will discuss research topics and seminar and studio presentations.
Behaviour: Examining the Proto-Systemic
Theodore Spyropoulos and Ryan Dillon, Term 2

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

Constructed Histories: Techno-Centric History of Design and Relation to the Mathematics, Tools and Materials of the Age
Shajay Bhooshan, Term 2

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

Phase I Prototyping Workshop: Responsive Systems
Apostolos Despotidis, Term 2

The workshop introduces students to prototyping and physical computing. Students will learn to use the Arduino platform while exploring various fabrication processes to give shape to their ideas. In Phase II, these techniques will serve as essential skills during prototype development.

Software Platforms: Maya, Rhino, 3D Studio, Processing, Arduino, Softimage, Adobe Suite, Python, Openframeworking & Scripting
Federico Borello, Torsten Broeder, Mariana Custodio Dos Santos, Paul Jeffries, Jurij Licen, Evagelina Magnisali, Octavian Mihai Gheorghiu, Konstantina Tsagkaratou, Terms 1 & 2

These optional workshops introduce a number of digital tools and software systems to give students a grounding in the skills required to construct and control parametric models and interactive presentations. Sessions will build up to advanced scripting, programming and dynamic modelling techniques.
Teaching Staff & Biographies
Teaching Staff & Biographies

Staff List

DRL Programme Staff
Course Director
Dr Theodore Spyropoulos        Spyropoulos_Th@aaschool.ac.uk
Founder
Dr Patrik Schumacher          Patrik.Schumacher@aaschool.ac.uk
Course Masters
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Course Tutors
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External Examiners
Professor Stephen Gage        s.gage@ucl.ac.uk

Graduate School Administrative Staff

AA Director
Eva Franch i Gilabert         Eva.Franch@aaschool.ac.uk
Registrar
Belinda Flaherty              Belinda@aaschool.ac.uk
Administrative Coordinator
Clement Chung                 clement@aaschool.ac.uk
Programme Director – Theodore Spyropoulos
Theodore Spyropoulos is director of the experimental architecture and design practice Minimaforms. He has been a visiting Research Fellow at MIT and cofounded the New Media Research Initiative at the AA. He has taught in the graduate school of the University of Pennsylvania and the Royal College of Art, Innovation Design Engineering Department and previously worked as a project architect for the offices of Peter Eisenman and Zaha Hadid Architects.

Programme Founder – Patrik Schumacher
Patrik Schumacher is a practicing architect and architectural theorist promoting parametricism. He studied philosophy and architecture in Bonn, Stuttgart and London and received his doctorate in Cultural Science at Klagenfurt University. He is a partner at Zaha Hadid Architects and as recently been the John Portman Chair at Harvard's GSD. Patrik Schumacher lectures and publishes globally. His writings are available on www.patrikschumacher.com

Programme Course Masters – Shajay Bhooshan, David Greene
Shajay Bhooshan is a MPhil candidate at the University of Bath, UK and a Research Fellow at Institute of Technology in Architecture, ETH Zurich where he is a research assistant in Block Research Group. He also, heads the research activities of the Computation and Design (co|de) group at Zaha Hadid Architects, London and works as a studio master at the AA DRL Master's programme. Previously he worked at Populous, London and completed his Master’s Degree AA School of Architecture, London in 2006.

David Greene, born Nottingham England 1937, usual English provincial suburban upbringing, art school, elected associate member of the RIBA and onto London to begin a nervous, nomadic and twitchy career, from big buildings for developers to T-shirts and shops for Paul Smith, to conceptual speculations for Archigram, which he founded with Peter Cook. This peripatetic journey from form to absence was documented in L.A.W.u.N Project #19+20, a book-thing and an AA exhibition, co-edited and co-curated with Samantha Hardingham. RIBA Gold Medal 2002. Joint Annie Spinks Award with Peter Cook (2002). Currently maybe the Provost of the Invisible University?

Programme Coordinator – Ryan Dillon
Ryan Dillon received his BArch from Syracuse University School of Architecture and a MA (dist) in the Histories and Theories programme at the AA. Currently he is Unit Master of AA Intermediate Unit 5 since 2013 and teaches in the History and Theory programme and is a member of the Teaching and Learning Committee. Previously he worked at Moshe Safdie Architects on the Peabody Essex Museum and the Khalsa Heritage Centre.

Programme Course Tutors – Pierandrea Angius, Apostolos Despotidis, Mostafa El-Sayed, Alicia Nahmad Vasquez, Alexandra Vougia
Pierandrea Angius is currently working for Zaha Hadid Architects. He holds a degree in Architecture and a PhD in Building Technology from the Politecnico of Milan and a MArch in Architecture and Urbanism from the AA. Since 2009 he has been teaching at the University of Pennsylvania Visiting Design Studio.

Apostolos Despotidis is currently working for Fosters + Partners and has previously worked for Minimaforms London Ltd. where he has been involved in projects of various scales from urban planning to installation design. He has MArch from the AADRL and an Architect/Engineer degree from the Aristotle University of Thessaloniki. He is a registered architect in Greece since 2010.

Mostafa El-Sayed is the co-founder of Automata Technologies and previously worked as a member of the Computation and Design group at Zaha Hadid Architects. He is a graduate of the AA and the American University of Sharjah. He has taught and presented work at various events, workshops and institutions both in London and internationally.

Klaus Platzgummer studied architecture at ETH Zürich and holds a Master’s in History and Critical Thinking in Architecture from the AA. He currently co-teaches the synthesis seminars in the AA DRL program and serves as a teaching assistant for History and Theory Studies at the AA Undergraduate School.

Alicia Nahmad Vasquez is a PhD Fellow at the Welsh School of Architecture, University of Cardiff. She previously worked with the Parametric design group at Populous, London for and has accumulated design and construction experience in various practises including Zaha Hadid Architects and Grupo Inmobiliario Altiva, Mexico. Her research focus includes the mediation between digital design and traditional material crafts and the incorporation of human-robot interactions on the construction site.

Alexandra Vougia studied architecture in Thessaloniki, Greece and holds an MS in Advanced Architectural Design from GSAPP, Columbia University. She was awarded an MPhil from the AA School in 2016. She has worked as an architect in New York and Athens and has taught at the AA School and the University of Westminster.

Technical Tutors – Albert Williamson-Taylor
Albert Williamson-Taylor has been the lead technical tutor on the AADRL MArch programme since 2011. He is an active member on the Steering Committee of the Council for Tall Buildings, and as cofounder of design-led structural engineering firm AKT II he brings a passion for cutting-edge technology to the many projects that he oversees. He has extensive experience in award-winning designs that emphasise innovation and computational research in combination with a sustainable approach to technology and respect for heritage.
Programme Specification

19 20
Programme Specifications

1 Awarding Institution/Body                      OU Open University*

2 Teaching Institution                           Architectural Association School of Architecture

3 Programme Accredited By                       OU Open University*

4 Final Award                                    MArch (Architecture & Urbanism)

5 Programme                                      MArch (Architecture & Urbanism)

6 UCAS code                                      n/a

7 Relevant QAA subject benchmarking standard     n/a

8 Date of production/revision                    September 2019

9 Educational Aims of the programme

The programme aims to develop the learner’s interest, knowledge and skill of contemporary architectural design, including the relationship of contemporary architectural projects and spaces to urbanism and urban settings. Emphasis is placed upon learning advanced design concepts, skills and knowledge related to the making of architectural design proposals, in a team–based studio setting using advanced design tools. Participants in the programme come from around the world and have prior academic and professional training in their home countries. Upon completion Graduates re–enter the profession as architectural designers in their home countries and abroad. Many also go on to teach in leading architecture schools around the world.

10 Programme learning outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills, qualities and attributes in the following areas:

Knowledge and Understanding

A1 The relationship of contemporary architectural design and urbanism.
A2 Current developments in contemporary design theories, practices, and their discourses.
A3 Current developments in design tools and technologies.
A4 The team–based development of comprehensive design proposals.
A5 Relating theoretical interests and design concepts to specific design methods, techniques & outcomes.
A6 Principles for negotiating today’s advanced design systems to make comprehensive project media.

Teaching, learning and assessment methods used to enable outcomes to be achieved and demonstrated
Tutor–led tutorials of team–based design studio and workshop projects; tutor–led seminar presentations and discussion of course readings; presentations to visiting outside critics; written assessment of course submissions.

Assessment

Coursework submissions, including project documents consisting of design graphics and project texts; written essays; electronic multi–media documentation; physical and digital design models. Project presentations, including verbal description and discussion of project development, results, media, documents and models.

Intellectual Skills and other Attributes

Intellectual Skills

B1 Apply the skills needed for academic study and enquiry.
B2 Direct and evaluate the development of comprehensive design proposals.
B3 Synthesise information constraining specific design projects and goals.
B4 Utilise design problem–solving skills.
B5 Relate specific design tools and media to personal design goals and interests.
B6 Identify, analyse and evaluate significant contemporary design projects and innovation.
Teaching, learning and assessment methods used to enable outcomes to be achieved and demonstrated

Tutor–led tutorials of team–based design studio and workshop projects; tutor–led seminar presentations; self–directed and group–based learning; presentations to visiting outside critics; written assessment of project documents.

Assessment

Coursework submissions, including project documents consisting of design graphics and project texts; written essays; electronic multi–media documentation; physical and digital design models. Project presentations, including verbal description and discussion of project development, results, media, documents and models.

Professional practical skills

C1 Undertake skilled, competent, comprehensive architectural design projects.
C2 Document and communicate innovative design ideas and techniques.
C3 Make judgments and evaluate contemporary design projects, problems and results.
C4 Reflect upon design results and relate design outcomes to contemporary architectural practice.
C5 Communicate and negotiate personal design interests and goals to team–based design development.
C6 Utilise and operate advanced design media, systems and tools.

Teaching, learning and assessment methods used to enable outcomes to be achieved and demonstrated

Studio design work, including tutor–led tutorials of all stages of design projects; assessment of course submissions.

Assessment

Progressive evaluation of project documents and media in tutorials, presentations and final course submissions.

Transferable/key skills

D1 Communicate effectively with a wide range of individuals, including team members and outside critics.
D2 Evaluate his/her own academic and professional performance in the design studio.
D3 Manage the progressive refinement and development of design projects.
D4 Relate final project outcomes to initial design thesis proposals, interests and goals.
D5 Utilise design problem–solving skills in a variety of practical situations.
D6 Take personal responsibility for personal and professional learning and development.
D7 Manage time and prioritise workloads.
D8 Design system management skills, including digital design media and IT skills.

Teaching, learning and assessment methods used to enable outcomes to be achieved and demonstrated

Transferable/key skills are generally incorporated within modules and related to relevant assessments as appropriate. Examples include tutor–led tutorials of design studio and workshop projects; design problem–solving related to studio and workshop briefs; written essays and analysis of design projects; making of detailed project graphics and models describing studio and workshop projects.

11 Programme structures and requirements, modules, credits and award

The course is studied over sixteen months full–time and is only offered as a full–time, studio–based, course. The programme is arranged as 4 x (12, 11, 9 or 13) week terms. There are 45 total study weeks divided between the four terms. The first three terms (beginning in September/October and finishing the following June each academic year) constitutes Phase I, or the Core Phase, of the two–phase programme. Term 4 (beginning the following September/October and finishing the following January) constitutes Phase II, or the Candidacy Phase, of the programme.

The programme is divided into 4 terms of study. Each term consists of a different combination of the programme’s three course types: Design Studios, Design Workshops, and Design Seminars. Each of the four terms has a credit level of 45 credits, all of which must be successfully passed by students. Phase I of the programme consists of 3 x 45 credits, or 135 credits. Phase II consists of 45 credits. The programme consists of a total of 180 credits, all of which must be successfully passed in order to complete the programme. Each credit of course study corresponds to 10 hours of student work; 180 credits x 10 hours study/credit = 1,800 hours total study undertaken during the sixteen months in the programme.

Each individual course in the programme is called a study module and is assigned a credit level corresponding to the course’s overall work load within each term. Phase I (terms 1, 2 & 3) in the programme consists of a combination of Design Studio, Workshop and Seminar courses, or modules, with progressive emphasis placed upon the Phase I Design Studio course or module, which extends across terms 2 & 3. The second of two required Design Seminar courses during terms 1 & 2 is designated as an elective seminar, and can be taken from the programme’s core seminars, the School’s other Graduate Design Programmes,
Graduate Programmes, or Undergraduate General Studies Programme. Phase II, Term 4, in the programme consists of a Thesis Design Preparation Document submitted at the end of Week One of the term, and a Thesis Design Studio course leading to final completion of the programme.

Curriculum map
This map provides both a design aid to help academic staff identify where programme outcomes are being developed and assessed within the course. The map helps students monitor their own learning and personal development as the course progresses.

PHASE I

Term 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Status</th>
<th>Pre–requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>DW 101X</td>
<td>Design Workshop I</td>
<td>10</td>
<td>Compulsory</td>
<td>DW 101X</td>
</tr>
<tr>
<td>DW 102X</td>
<td>Design Workshop II</td>
<td>10</td>
<td>Compulsory</td>
<td>DW 102X</td>
</tr>
<tr>
<td>DW 103X</td>
<td>Design Workshop III</td>
<td>5</td>
<td>Compulsory</td>
<td>DW 103X</td>
</tr>
<tr>
<td>DS 101X</td>
<td>Design Core Seminar</td>
<td>10</td>
<td>Compulsory</td>
<td>none</td>
</tr>
<tr>
<td>DS 102X</td>
<td>Design Elective Seminar</td>
<td>10*</td>
<td>Designated</td>
<td>none</td>
</tr>
<tr>
<td>DSS 101X</td>
<td>Design Software Seminar</td>
<td></td>
<td>Optional</td>
<td>none</td>
</tr>
</tbody>
</table>

Students must take all compulsory and designated modules. The designated seminar module can be either a second programme Core Seminar or a seminar module from any Graduate Design Programme, Graduate School Programme, or the Undergraduate History and Theory Programme.

Term 2

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>DST 201X</td>
<td>Design Studio I</td>
<td>25</td>
<td>Compulsory</td>
<td>DW 103X</td>
</tr>
<tr>
<td>DS 201X</td>
<td>Design Core Seminar</td>
<td>10</td>
<td>Compulsory</td>
<td>none</td>
</tr>
<tr>
<td>DS 201X</td>
<td>Design Core Seminar</td>
<td>10</td>
<td>Compulsory</td>
<td>none</td>
</tr>
<tr>
<td>DS 202X</td>
<td>Design Elective Seminar</td>
<td>10</td>
<td>Designated</td>
<td>none</td>
</tr>
<tr>
<td>DSS 201X</td>
<td>Design Software Seminar</td>
<td></td>
<td>Optional</td>
<td>none</td>
</tr>
</tbody>
</table>

Students must take all compulsory and designated modules. The designated seminar module can be either a second programme Core Seminar or a seminar module from any Graduate Design Programme, Graduate School Programme, or the Undergraduate History and Theory Programme.

Term 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<th>Pre–requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>DST 301X</td>
<td>Design Studio II</td>
<td>45</td>
<td>Compulsory</td>
<td>DST 201X</td>
</tr>
</tbody>
</table>

Students must take all compulsory modules.

PHASE II

Term 4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Status</th>
<th>Pre–requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>DST 401X</td>
<td>Thesis Prep Document</td>
<td>–</td>
<td>Compulsory</td>
<td>DST 301X</td>
</tr>
<tr>
<td>DST 402X</td>
<td>Thesis Design Studio</td>
<td>45</td>
<td>Compulsory</td>
<td>DST 301X</td>
</tr>
</tbody>
</table>

Note: DST 401X credits are included in the DST402X 45 credits

Students must take all compulsory modules.

Total credits & award  
180 Credits MArch (Architecture & Urbanism)
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.
12 Support for students and their learning

Introduction week school orientation for all new students; shared Graduate School Course Curricula Introductions for all new and returning students; course guides and module syllabuses; written AA School Academic Regulations stipulating academic organisation, staff responsibilities, the Graduate Management Committee, graduate courses, entry requirements and complaint procedures; programme non–credit software seminars and tutorials; library use and research guides; computing lab facilities and non–credit IT skill courses; photo lab and darkroom; materials workshop and support; physical model making workshop and support; slide and video library; audio visual equipment lab and support; design system support equipment including laser cutters, CNC milling machines, 3D printers; student email accounts; design software and support; overseas travel; opportunities for overseas student visit & exchange; bursary programme; evening public lecture series; graduation class dinner; student access to graduate school office and registrars' office administration support; school and end–of–year exhibitions.

Professional practical skills

C1 Undertake skilled, competent, comprehensive architectural design projects.
C2 Document and communicate innovative design ideas and techniques.
C3 Make judgments and evaluate contemporary design projects, problems and results.
C4 Reflect upon design results and relate design outcomes to contemporary architectural practice.
C5 Communicate and negotiate personal design interests and goals to team–based design development.
C6 Utilise and operate advanced design media, systems and tools.

Transferable/key skills

D1 Communicate effectively with a wide range of individuals, including team members and outside critics.
D2 Evaluate his/her own academic and professional performance in the design studio.
D3 Manage the progressive refinement and development of design projects.
D4 Relate final project outcomes to initial design thesis proposals, interests and goals.
D5 Utilise design problem–solving skills in a variety of practical situations.
D6 Take personal responsibility for personal and professional learning and development.
D7 Manage time, prioritise and workloads.
D8 Design system management skills, including digital design media and IT skills

Knowledge & Understanding

A1 The relationship of contemporary architectural design and urbanism.
A2 Current developments in contemporary design theories, practices, and their discourses.
A3 Current developments in design tools and technologies.
A4 The team–based development of comprehensive design proposals.
A5 Relating theoretical interests and design concepts to specific design methods, techniques & outcomes.
A6 Principles for negotiating today’s advanced, networked, design systems.

Intellectual Skills

B1 Apply the skills needed for academic study and enquiry.
B2 Direct and evaluate the development of comprehensive design proposals.
B3 Synthesise information constraining specific design projects and goals.
B4 Utilise design problem–solving skills.
B5 Relate specific design tools and media to personal design goals and interests.
B6 Identify, analyse and evaluate significant contemporary design projects and innovation.

13 Course Marks

Course submissions for all modules are double–marked on a scale of 0–100%. Summary of coursework marks:

<table>
<thead>
<tr>
<th>Mark</th>
<th>Grade</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>70% and above</td>
<td>A</td>
<td>Distinction</td>
</tr>
<tr>
<td>65–69%</td>
<td>B+</td>
<td>High Pass</td>
</tr>
<tr>
<td>60–64%</td>
<td>B</td>
<td>Good Pass</td>
</tr>
<tr>
<td>57–59%</td>
<td>C-</td>
<td>Satisfactory Pass</td>
</tr>
<tr>
<td>54–56%</td>
<td>C</td>
<td>Adequate Pass</td>
</tr>
<tr>
<td>50–53%</td>
<td>D</td>
<td>Low Pass</td>
</tr>
<tr>
<td>49 and below</td>
<td>F</td>
<td>Fail</td>
</tr>
</tbody>
</table>
**14 Criteria for admission**

Students must be able to satisfy general admissions requirements stipulated in Part 4.B of the Architectural Association School Academic Regulations, revised September 2011, including:

A five-year professional BArch (Bachelors of Architecture) degree or equivalent professional degree or diploma. Preference is given to applicants with additional professional experience in architectural offices or related design professions and to applicants with design portfolios showing strong design skills as demonstrated in either (or a combination of) prior academic and professional experience. Exceptionally, the school reserves the right to accept professional or other experience in lieu of a first professional degree.

Additional requirements:

Students whose first language is not English must provide an UKBA-listed IELTS or recognised English language original examination certificate with an overall mark of 6.5 with a minimum of 6.0 in each component. Admission with acceptance for advanced standing is not possible.

**15 Methods for evaluating and improving quality and standards of teaching and learning**

Module reviews based upon student feedback questionnaires; Student meetings and discussion with course staff; individual and group tutorials with course staff; All course submissions are double-marked by programme staff; Course review and comments by course tutors given to programme directors and Graduate Management Committee members; Annual staff appraisal; Peer teaching observation and discussion; External Examiner reports; Regular discussion and review with outside visiting critics; monitoring of annual budget expenditures by Graduate School Coordinator and programme directors; open door student access policy with programme directors, Registrars office, and School Director.

Committees with responsibility for monitoring and evaluating quality and standards:

School Graduate Management Committee.

Board of Examiners – meets in the summer term following Class Graduation to consider marks, progression and awards.

Mechanisms for gaining student feedback on the quality of teaching and learning experience:

Individual and group student–staff meetings and discussions; Written feedback questionnaires; student representation on school student forum; and annual meetings with the Director of the school.

Staff development priorities include:

Staff expected to attain Professional degree or higher; updating professional IT/Computing skills; regular staff publication in professional and other journals; regular staff participation in international exhibitions, symposia and conferences; annual staff appraisal by Director's office.

**16 Regulation of Assessment**

Assessment rules and Award with Distinction classification

Minimum passing mark is 50% for each module. An overview of assessment details is provided in module syllabuses. To qualify for the award of MArch (Architecture and Urbanism) with Distinction, students must complete all course requirements and pass all modules with an aggregate mark of 70% (distinction) or above. Marks from both Phase I and II contribute to the final classification of the degree and emphasis is given to Phase I & II Design Studio marks when determining degree with distinction awards.

Role of External Examiners

One or more External Examiners are nominated by the Graduate Management Committee. The role of the external examiner is to provide an annual overview and monitoring of the programme. In order to do this they: meet with programme staff; review a range of design projects, media and documents, written course work, written course work assessments and programme facilities. The external examiner(s) attends the Joint Assessment Board and summarise the results of the Examination and provide a written report to programme staff and to the Graduate Management Committee for review, response and approval.

Note:
This report has been prepared following the recommendations included in The QAA Quality Assurance Agency for Higher Education 'Guidelines for preparing programme specifications' report (June, 2000) and The QAA 'Policy on programme specifications' statement (October, 1999).

*The AA is a Partner 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.*
Learning Outcomes
The main aims and learning outcomes of the AADRL can be roughly divided into four distinct forms of knowledge and skills attained by its students: broad forms of knowledge/understanding relating to overall intellectual grasp of architectural design; intellectual skills relating to students understanding of their own development; practical skills relating to design thinking, tools and systems; and transferable/key skills that include abilities to accomplish many kinds of tasks, professional and otherwise, not directly related to architectural design. For the purposes of this summary of programme aims these four kinds of knowledge and skill are neither mutually exclusive nor are the unique outcome of any single design project undertaken in the programme's courses. Rather, they are the expected outcomes of forms of synthesis and learning, which demands a fluid assimilation of a broad range of skills and knowledge that are a central feature of the making of all design projects.

Knowledge and Understanding
Upon completion of the programme students are expected to have gained broad knowledge and understanding of issues related to the making of architectural design projects and those projects relationships to their contemporary urban settings. This knowledge and understanding is an expected learning outcome of the programme's design studio, workshop and seminar courses. They are expected to:

1. demonstrate a thorough knowledge related to the making of innovative architectural design projects, including the relationship between architectural projects and their urban settings.
2. demonstrate critical thinking and knowledge of contemporary design theories, practices and their discourses
3. demonstrate a knowledge and understanding of current developments in design tools, systems and technologies.
4. demonstrate a knowledge of and skills associated with the making of team–based comprehensive architectural design projects.
5. be skilled in relating theoretical implications and design objectives to specific design tools or systems and processes
6. be able to communicate within and contribute to interdisciplinary professional design teams in the form of detailed project design and research documentation, in both traditional printed formats including books and brochures, as well as other new media forms

Intellectual Skills
Upon completion of the programme students are expected to have gained intellectual skills associated with their academic and professional development gained from all aspects of the programme, including especially design studio and workshop courses. These intellectual skills relate specifically to the forms of knowledge needed to successfully undertake architectural design projects. More general intellectual skills are listed below. They are expected to:

1. apply the skills needed for academic study and enquiry
2. evaluate, monitor and assess the stages of development in making design proposals
3. synthesise and evaluate complex and often conflicting information constraining the limits of specific design proposals, including brief, site and design objectives.
4. utilise extensive design problem–solving and analytic skills underlying design processes
5. relate specific design tools and media to their own personal design interests and goals
6. identify, analyse and evaluate significant contemporary design projects and innovation

Practical Skills
Upon completion of the programme students are additionally expected to have gained a broad range of practical skills better preparing them for professional careers as architectural designers. These skills relate specifically to the conceptual and technical aspects of preparing professional architectural designs, and are gained from all aspects of course work. These skills are
further elaborated and synthesised in the programme’s thesis
design studio projects. They are expected to:

1. have the skills to undertake competent, complete architectural design projects
2. be able to use a combination of design information technologies to document projects
3. make judgements and evaluate their own work in relation to other contemporary design projects, problems and results
4. be able to reflect upon their own design results and relate these to other design outcomes and contemporary design practise
5. communicate and negotiate their own personal design intentions with team-based forms of design development and management.
6. utilise and operate advanced design media, systems and tools including information technology systems

Transferable/key skills

Upon completion of the programme students are additionally expected to have gained transferable/key skills that are relevant to a wide range of professional tasks beyond purely design-related tasks. These include the ability to:

1. effectively communicate with a wide range of individuals, including team members, project consultants, support and technical personnel, outside critics and interested observers
2. evaluate his or her own academic and professional performance and abilities
3. plan for and manage the development of comprehensive design projects, including the establishment of initial design goals, relevant design methods, and project time tables
4. relate final project results and outcomes to initial goals and project methods
5. utilise a wide range of problem-solving skills used to analyse and evaluate interim results and objectives
6. take personal responsibility for their personal and professional learning and development within design teams
7. manage their time realistically in order to establish and prioritise tasks.
8. relate design management skills to the use of design media and information technologies

Details of the Teaching and Learning Strategies and Assessment Criteria follow in later sections of this handbook.

Details of the criteria used for the assessment of these Aims and Learning Outcomes are listed in a following Section of this programme document.
Course Module Specification & Calendar

19 20
Programme Structure Summary

The MArch (A&U) at the AA is studied over sixteen months full-time and is only offered as a full-time, course of studies leading to a M.Arch (Architecture & Urbanism) award. The programme is arranged as (12, 11, 9, 13) week academic terms (which vary slightly during the calendar each year), which average 11.25 weeks per term. There are 45 total study weeks divided between the four terms. The first three terms (beginning in September/October and finishing the following June each academic year) constitutes Phase I, or the Core Phase, of the two-phase programme. Term 4 (beginning the following October and finishing the following January) constitutes Phase II, or the Candidacy Phase, of the programme. This two-phase, four-term structure is summarised in the following table:

<table>
<thead>
<tr>
<th>Term</th>
<th>Weeks</th>
<th>Credit Units</th>
<th>Percentage of Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1</td>
<td>12</td>
<td>45</td>
<td>25%</td>
</tr>
<tr>
<td>Term 2</td>
<td>11</td>
<td>45</td>
<td>25%</td>
</tr>
<tr>
<td>Term 3</td>
<td>9</td>
<td>45</td>
<td>25%</td>
</tr>
<tr>
<td>Term 4</td>
<td>13</td>
<td>45</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>180</td>
<td>100%</td>
</tr>
</tbody>
</table>

Credit Breakdown Summary

The programme is divided into 4 terms of study. Each term consists of a different combination of the programme’s three study modules: design studios, design workshops, and design seminars. Terms 1–3 in the programme are called Phase I or the Core Phase of the programme; Term 4 constitutes Phase II, or the Candidacy Phase, of the programme. Each of the four academic terms has a credit level of 45 credit units, all of which must be successfully passed by students. Phase I of the programme consists of 3 x 45 credits, or 135 credits. Phase II consists of 45 credits. The programme consists of a total of 180 credits, all of which must be successfully passed in order to complete the programme. Each credit of course study corresponds to 10 hours of student work; 180 credits x 10 hours study/credit = 1,800 hours total study undertaken during the sixteen months in the programme. The course credit breakdown assigned to individual modules corresponds to 1 credit unit for each 10 hours of time spent at lectures, seminars, course reading, workshops and tutorials, and for studio time spent on projects, course submissions, and other assigned tasks. A total of 180 credits are required for satisfactory completion of the course. All required and designated modules must be successfully passed by the student for satisfactory completion of the course.

Course Modules

Each individual course in the programme is called a study module and is assigned a credit level corresponding to the course’s overall work load within each term. Phase I (terms 1, 2 & 3) in the programme consists of a combination of Design Studio, Workshop and Seminar courses, or modules, with progressive emphasis placed upon the Phase I Design Studio course or module, which extends across terms 2 & 3. The first of two required design seminars taken during terms 1 & 2 must be taken from one of the programme’s design core seminars. The second of two required design seminars during terms 1 & 2 is designated as an elective seminar, and can be taken from the programme’s core seminars, the programme’s elective seminars, the school’s other graduate design programmes, graduate programmes, or undergraduate general studies programme. Term 4, Phase II in the programme consists of the preparation of a thesis design preparation document submitted at the beginning of the term and the completion of a thesis design studio module.
There are three main kinds of study modules in the programme, which serve as the basis for attaining expected learning outcomes. These are design studios, design workshops, and design seminars. Design studios include phase I design studios taken in terms 2 & 3, and the thesis design studio taken in term 4. The module structure and content is generally the same, and focuses on the preparation of architectural design projects undertaken in small, self-organised, design teams. Design workshop modules consist of shorter-term design projects undertaken during Phase I in the programme, normally in term 1. Design workshops consist of two types of seminar courses: design core modules, which are permanent course topics repeated year-to-year and serving as part of the core of the programme, and Design elective seminars, consisting of other seminar topics that are less related to the core teaching and learning of the programme's design studio and workshop courses.

Phases I & II Required Modules
Phase I, the Core Phase, begins in October and consists of tutor-led Design Studio, Workshop & Seminar Courses taught by programme staff.

Term 1 consists of five design workshop modules and two design seminar modules, of which one must be taken from the programme's design core seminars and the second of which can be taken from any of the programme's other design core seminars, other graduate design programmes, graduate programmes, or the general studies programme of the undergraduate school.

Term 2 consists of one design studio module and two design seminar modules, of which one must be taken from the programme's design core seminars and the second of which can be taken from any of the programme's other design core seminars, other graduate design programmes, graduate programmes, or the general studies programme of the undergraduate school.

Term 3 consists of one design studio module. The design results prepared during this module are presented to programme staff and panel of visiting critics and architects at the end of term 3.

Phase II, the Candidacy Phase, a tutor-led Design Thesis Studio courses taught by programme staff, in Term 4 begins in September/October.

Term 4 (autumn) consist of the preparation of a thesis prep document and one design thesis studio module. The design results prepared during this module are presented, along with selected design results from terms 1-3, to programme staff and a panel of visiting critics and architects at the end of term 4, which constitutes completion of the programme.

Required Learning Hours
Students in the programme complete a total of 1800 student learning hours over 45 weeks, an average of 40 hours per week. The proportion of contact hours (teaching and tutorial time) and individual work is approximately 25% and 75% respectively; although in design studio, design thesis studio and design workshop modules this varies slightly, according to need, ability and design team preferences. Phase I modules during terms 1–3 have a higher degree of contact time and design tutorial time than Phase II design thesis modules, which emphasise the student-led preparation of a thesis design project that requires individual students to successfully direct and synthesise a variety of design skills and knowledge in a mature, professionally competent, way. Total student learning hours, which includes additional self-directed student work undertaken during term breaks and the summer break between Phases I & II normally far exceeds the required 1800 learning hours. This reflects the studio-based project aims, emphasis and learning outcomes of the programme, and is consistent with other graduate design programmes at the Architectural Association and elsewhere. The MArch (A&U)'s dedicated studio spaces are normally made available to students from 8:00am to 10:00 pm, seven days a week and are also open.
during breaks. Most students make extensive use of these studio hours, frequently working in the studio space six or seven days a week during times when not elsewhere attending class sessions in other parts of the school.

Self-directed Learning
Students undertake self-directed studies during term breaks between terms 1 / 2 and 2 / 3 in the form of preparing final course submissions, including project documents and written essays, for the preceding term’s courses, which are due last day of each term.

Normally, Students do not undertake extensive self-directed studies during the Summer Holiday between Phases I & II. Required work during the Summer Holiday is reserved for Design Studio teams with results of design studio module courses that are assessed as unsatisfactory and not at a suitable level to Pass these courses and allow them to go forward to Phase II of the programme. Following tutor-led tutorials on final Phase I Design Studio project results, design teams in this situation are asked to undertake self-directed additional work on studio projects, whose results are presented to programme staff prior to a final assessment of the Phase I Design Studio project. In rare cases, students whose overall performance and cumulative Phase I course mark are deemed consistently unsatisfactory and failing are asked to either repeat phase I studies, or, in exceptional cases, asked to leave the programme.

Thesis Preparation Document
All students are required to complete a minimal level of self-directed studies during the summer holiday between phases I & II in order to prepare a design thesis prep document, which outlines the thesis proposal for design teams and their projects that will be undertaken during design thesis studio modules. The thesis prep document is submitted to design thesis studio tutors at the end of week one during term 4, and summarises the objectives, aims, brief and other details of the planned thesis design project. Details of the required document submission are included in the module syllabus for the design thesis prep document, included in a following section of this programme document.

Project Documentation
Project results from all study modules are submitted for assessment in the form of course submissions, which serve as an important basis for student assessments in the programme. Wire bound project booklets document completed design projects prepared during design studio and workshop modules. Hardbound project books, completed by design teams as a part of design thesis studio modules, document final thesis design projects. A selected range of these submissions are included in annual external examinations and end-of-year exhibitions of student work.
Module Breakdown Summary

PHASE I

Term 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Code</th>
<th>Study Module (course title)</th>
<th>Credits</th>
<th>Status</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>DW</td>
<td>101X</td>
<td>Design Workshop I</td>
<td>10</td>
<td>Compulsory</td>
<td>none</td>
</tr>
<tr>
<td>DW</td>
<td>102X</td>
<td>Design Workshop II</td>
<td>10</td>
<td>Compulsory</td>
<td>DW 102X</td>
</tr>
<tr>
<td>DW</td>
<td>103X</td>
<td>Design Workshop III</td>
<td>5</td>
<td>Compulsory</td>
<td>DW 103X</td>
</tr>
<tr>
<td>DS</td>
<td>101X/Y</td>
<td>Design Core Seminar</td>
<td>10</td>
<td>Compulsory</td>
<td>none</td>
</tr>
<tr>
<td>DS</td>
<td>102X</td>
<td>Design Elective Seminar</td>
<td>10</td>
<td>Designated</td>
<td>none</td>
</tr>
<tr>
<td>DSS</td>
<td>101X</td>
<td>Design Software Seminar</td>
<td>–</td>
<td>Optional</td>
<td>none</td>
</tr>
</tbody>
</table>

Students complete all compulsory and designated module credits. The design core seminar must be taken from one of the programme's design core seminars offered during the term; the second, elective, seminar can be taken from the programme's other design core seminars, the programme's elective seminars, the other graduate design programmes, graduate programmes, or the undergraduate general studies programme. The programme's design software seminars are optional, non-assessed, tutorials aimed at improving technical skills and understanding.

Term 2

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Status</th>
<th>Pre-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSt</td>
<td>201X Design Studio I</td>
<td>25</td>
<td>Compulsory</td>
<td>DW 103X</td>
</tr>
<tr>
<td>DS</td>
<td>201X/Y Design Core Seminar</td>
<td>10</td>
<td>Compulsory</td>
<td>none</td>
</tr>
<tr>
<td>DS</td>
<td>202X Design Elective Seminar</td>
<td>10</td>
<td>Designated</td>
<td>none</td>
</tr>
<tr>
<td>DSS</td>
<td>201X Design Software Seminar</td>
<td>–</td>
<td>Optional</td>
<td>none</td>
</tr>
</tbody>
</table>

Students complete all compulsory and designated module credits. The design core seminar must be taken from one of the programme's design core seminars offered during the term; the second, elective, seminar can be taken from the programme's other design core seminars, the programme's elective seminars, the other graduate design programmes, graduate programmes, or the undergraduate general studies programme. The programme's design software seminars are optional, non-assessed, tutorials aimed at improving technical skills and understanding.

Note: in Term 2 students can elect to take a seminar provided by any of the other AA Graduate School programmes and submit one of the two required essay submissions for that elected course.

Term 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Status</th>
<th>Pre-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSt</td>
<td>301X Design Studio II</td>
<td>45</td>
<td>Compulsory</td>
<td>DSt 201X</td>
</tr>
</tbody>
</table>

Students must take all compulsory modules.

PHASE II

Term 4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Status</th>
<th>Pre-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>DW</td>
<td>401X Design Workshop</td>
<td></td>
<td>Compulsory</td>
<td>DSt 301X</td>
</tr>
<tr>
<td>DSt</td>
<td>401X Thesis Design Prep</td>
<td></td>
<td>Compulsory</td>
<td>DSt 301X</td>
</tr>
<tr>
<td>DSt</td>
<td>402X Thesis Design Studio</td>
<td></td>
<td>Compulsory</td>
<td>DSt 301X</td>
</tr>
</tbody>
</table>

Students must take all compulsory modules.

Total credits & award 180 Credits M.Arch (Architecture & Urbanism)
Course Designation Codes
Advanced standing is not awarded to any students entering the programme. Students are required to successfully pass all compulsory and designated study modules to complete the programme. A course code system is used with study modules. The two letter prefix indicates whether the module is a design studio (DSt), design workshop (DW), or design seminar (DS). The three-digit number in the code indicates which term the course or study model is on offer (100 = term 1, 200 = term 2, etc.) and which part of a sequence a design workshop is in during term 1 (DW 101, DW102, etc.).

A letter suffix following the number distinguishes individual course offerings of the same module syllabus; the three courses on offer in the programme taught by three different course tutors during term 2 design studio I are designated accordingly (DSt 201A, DSt 201B, DSt 201C). The specific project details associated with each of the three different courses will vary and are summarised in a project brief for each course appended to the shared module syllabus of design studio. Module syllabuses for all compulsory study modules are included in later parts of the course guide.

For design studio and design workshop courses, each course module includes a project brief written by individual tutors appended to the shared syllabus; these specify design criteria, issues of site, client, program and other features of the design projects that will be focused on by individual tutors sections of the course.

Credit Units Breakdown
The following breakdown summarises the overall distribution of course credits in relation to study modules, showing the percentage of the total degree credits each module is assigned, and the relationship of each study module to the academic year calendar.

The following table also summarises the relative weight assigned in determining an overall assessment mark for each study module. The following components of a student’s performance form the basis for student assessment in each study module.

The ‘Submission’ refers to the formal course submission required at the end of each study module; a document (a project folio documenting the module’s design studio or workshop project; or a written essay relating to a design seminar’s topic). See below for further explanation. An explanation of assessment criteria and marking procedures is included in a following Section of this Programme Document.

Study Module Descriptions & Delivery
Each term of the programme is subdivided into individual tutor-led courses, called study modules. The study module and credit unit breakdowns included above describe the relative weight of each of the principal study modules during each of the four terms of study. This structure is a consistent feature of the programme year-to-year, and has not changed since the programme began and was originally validated.

The programme has three main kinds of study modules: Design Studios, which account for 64% of the total credit units awarded in the programme; Design Workshops, which account for 14% of the total credit units awarded in the programme; and Design Seminars, which account for 22% of the total credit units of the programme. An additional, optional Design Software study modules do not require formal course submissions and thus not account for course credit units.

As a studio-based design course, Design Studio and Workshop modules are the programme’s central means for delivering expected learning outcomes associated with the programme’s aims and objectives, which focus on the learning of necessary design knowledge and skills associated with the making of comprehensive, innovative, architectural design projects.
### Modules & Credits

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Study Module</th>
<th>Credits</th>
<th>Assessment elements (See previous page for explanation)</th>
<th>% Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1–5</td>
<td>DW 101X Design Workshop I</td>
<td>10</td>
<td>Submission (folio)</td>
<td>5.5%</td>
</tr>
<tr>
<td>6–12</td>
<td>DW 102X Design Workshop II</td>
<td>10</td>
<td>Submission (folio)</td>
<td>5.5%</td>
</tr>
<tr>
<td>1–12</td>
<td>DS 101X/Y Design Core Seminar</td>
<td>10</td>
<td>Submission (essay)</td>
<td>5.5%</td>
</tr>
<tr>
<td>1–12</td>
<td>DS 101X/Y Design Elective Seminar</td>
<td>10</td>
<td>Submission (essay)</td>
<td>5.5%</td>
</tr>
<tr>
<td>Term 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 2</td>
<td>DW 103X Design Workshop III</td>
<td>5</td>
<td>Submission (folio)</td>
<td>3%</td>
</tr>
<tr>
<td>1–11</td>
<td>DS 201X/Y Design Core Seminar</td>
<td>10</td>
<td>Submission (essay)</td>
<td>5.5%</td>
</tr>
<tr>
<td>1–11</td>
<td>DS 202X Design Elective Seminar</td>
<td>10</td>
<td>Submission (essay)</td>
<td>5.5%</td>
</tr>
<tr>
<td>3–11</td>
<td>DSt 201X Design Studio</td>
<td>25</td>
<td>Submission (folio)</td>
<td>14%</td>
</tr>
<tr>
<td>Term 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1–9</td>
<td>DSt 301X Design Studio</td>
<td>45</td>
<td>Submission (folio)</td>
<td>25%</td>
</tr>
<tr>
<td>Term 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1–13</td>
<td>DW 401X Design Workshop DSt 401/402X Design Studio</td>
<td>45</td>
<td>Submission (folio)</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>180</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

‘Credit Unit Breakdown’ including above summarises the relative weight assigned to the final course submission in various study modules when determining a final mark for the course.
The programme’s Design Seminars provide a vital means for elaborating and reflecting upon the Design Studio and Workshop projects.

Individual study modules are summarised in the following part of this Section. Individual module syllabuses are included in a following Section of this programme document.

Design Studios
Modules DSt 201x, DSt 301x & DSt 402x
These courses are the central means for pursuing the programme’s aims and objectives and accordingly account for more than half of the programme’s total credit units. Design Studios are term-long tutor-led courses exploring new design concepts, tools, problems, media and results by means of making comprehensive design projects. Project work is undertaken by students working in small, self-organised teams, who work on the development of project designs that address tutor-written project briefs, which are included as part of the module syllabus for each course.

Modules syllabi for design studio and thesis design studio modules as well as Project Briefs for the current academic year are included in the following sections of this Course Guide. Module syllabuses stipulate the permanent features of the course content, aims, structures, expected learning outcomes and assessment criteria; project briefs stipulate variable project details and design objectives related to individual course offerings of the module, setting out individual design project criteria including issues of project use, site, programme, organisation, client, and relationship to surrounding urban context, contemporary design theories, and proposed design tools/systems.

Expected learning outcomes in Design Studios are the result of regularly participating in the studio-based development of project designs, project presentations, regular tutorials and the completion and documentation of detailed short-term design projects and exercises. Formal course submissions for Design studios include written and electronic documents describing all design results in relation to project briefs, initial team-led design objectives, and other course work.

There are two design studio modules and one design thesis studio in the programme; which are each normally taught in three different course offerings for each module. A study module syllabus for each of these modules, designated DSt 201, DSt 301, and DSt 402 (the thesis design studio) follows in Part 3 of this handbook. All three are compulsory modules, are taken in sequence beginning in term 2 (spring term) of Phase I in the AADRL, and are assessed based upon the student course submission.

Design Workshop Modules
DW101x, DW102x, DW103x
Design Workshops consist of five shorter-term tutor-led modules exploring new design concepts, tools, problems, media and results, undertaken in the form of design projects addressing focused project briefs, topics or goals that are typically more narrowly focused than design studio modules. The design projects undertaken in these modules are intended to focus on specific design techniques, concept or ideas and not larger more complex design problems. Project work is undertaken by students working in small, self-organised teams, who work on the development of project designs that address tutor-written design briefs included in the study module syllabus.

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

Expected learning outcomes in Design Workshops are the result of regularly participating in the studio-based development of project designs, project presentations, regular tutorials and the completion and documentation of detailed short-term design projects and exercises. Formal course submissions for
Design Workshops including written and electronic documents describing all design results in relation to project briefs, initial team-led design objectives, and other course work. There are three design workshop modules in the programme; which are each normally taught in three different course offerings for each module. A study module syllabus for each of these modules, designated DW 101X, 102X and 103X, is included in Section Syllabi & Briefs of this programme document. All three are compulsory modules, are taken in sequence during term 1 (autumn) and are assessed based upon the student course submission.

Design Seminars
Modules DS101X, DS 101Y, DS 102X, DS 201X, DS 201Y & DS 202X, Design Seminar modules are term-long weekly courses that provide students with an opportunity to elaborate and reflect upon their own design results and interests in relation to other contemporary architectural design projects and contemporary design theories in the programme's compulsory seminars. Design seminars provide students both an overview of key design concepts, projects and the aims of contemporary architectural design, while also affording them an opportunity to participate in the larger educational and intellectual environment of the school by electing to take designated seminars in other parts of the graduate design programme, graduate programme, or the general studies programme of the undergraduate school. The programme teaches a combination of design core seminars, that are taught each academic year and variable design elective seminars that address unique course topics and areas of interest and focus sometimes not directly related to the programme's design studio or workshop projects. The purpose for this differentiation is to both acknowledge the permanent intellectual content and structure of the programme in design seminars, while also allowing for the pursuit of tangential, potentially important and emerging, design ideas and topics relevant to the programme's overall aims and objectives.

Design Core Seminar DS 101X
Design as Research
This seminar introduces students to a theoretical and historical background to contemporary design practices and their discourses, including specific topics relevant to the programme's overall aims and approach to the design as a form of shared, collective, design research. The seminar provides an overview to the main issues associated with the design work of the programme's design studios and seminars away from the project-based teaching and learning of these topics focused on individual project designs. Key design processes, working methods, and design concepts central to the programme's design studios and workshops, including issues of design as research, team-work, networked design tools, and project documentation with new and traditional forms of media, are presented in weekly sessions during which course tutors make presentations and lead group discussions of weekly course readings.

DS 201X Design Core Seminars
Behaviour: Examining the Proto-Systemic
This core seminar will articulate Proto-Design as a behaviour based agenda that engages experimental forms of material and computational practice. Examining cybernetic and systemic thinking through seminal forms of prototyping and experimentation, the seminar will look at the thought experiments that have manifested since the early fifties as maverick machines, architectures and ideologies. Coupled with exploratory forms of systemic practice the seminar will look at seminal analogue computational setups of masters of architecture and engineering Otto, Le Ricolais, Fuller, and Dieste. Team-based presentations will examine these methods and outputs as case studies for studio experimentation.

Constructed Histories: Techno-Centric History of Design and Relation to the Mathematics, Tools and Materials of the Age
This seminar traces synoptic histories of the built environment as a consequence of the liberating power of geometric abstraction to then understand such histories as additive manufacture of yesteryear in bricks and stone, influenced by and reciprocally shaping mathematics of graphic statics and stereotomy.
Design Elective Seminars DS 102X & DS 202X
These term-long seminar courses focus on specific design topics related to contemporary architectural design and urbanism, and are offered as opportunities to explore work and ideas not necessarily directly related to the programme’s current design studio agenda. In recent years these seminars have explored modern urbanism, architectural publications, and individual building types, such as the modern house. These elective seminars are taught by programme and visiting staff, and are delivered in weekly one and a half hour class sessions that are supplemented by course readings and tutorials with the course leader during which presentation materials and readings are discussed. This programme’s annual Course Guide includes module syllabuses for design elective seminars.

Expected learning outcomes in Design Seminars are the result of attending weekly course sessions and participating in course discussions and presentations based upon weekly readings. Formal course submissions for Design Seminars include written essays and electronic documents.

Study Module Participation & Course Submissions
Participation by students in all aspects of the programme’s study modules is a key means for delivery of its aims and expected learning outcomes. As a studio-based design course, learning in the programme depends on the students active participation in its studio-based environment; not only as the literal setting where design projects that are central to students’ work are undertaken, but moreover, as the setting in which tutor-led discussion of these projects can occur regularly throughout their duration. Participation in the course, constitutes more than simple attendance at class sessions.

The MArch (A&U) defines regular participation in the course as a combination of qualities: attendance in scheduled course sessions; presence in the studio working and negotiating with team mates on the regular development of design projects; preparation for and participation in weekly tutor-led tutorials evaluating recent design results; participation and performance in verbal interim and final project presentations to programme and outside visiting staff; and attendance in the studio during coordination with team mates regarding the preparation of required course submission materials.

The purpose of defining participation in the course by these criteria is to acknowledge the unique learning strategies associated with studio-based design education settings, in which neither simple attendance, nor the straightforward submission of a required course document, allows for full learning potential. Unlike some other academic disciplines and forms of knowledge that depend upon strict testing of student knowledge, learning outcomes in studio-based design courses are tested primarily in the form of the students active engagement with and participation in the making of detailed design projects that by definition require the synthesis of knowledge and skills with original design aims and objectives, developed gradually, during the life of a project. Evidence of progress related to these forms of synthesis occur not only based upon final project results, documented in course submissions in the programme’s design studio and workshop courses, but also in the results evidenced during project design tutorials and presentations constituting an important part of a student’s participation in these study modules.

Study Module Syllabuses
Individual Module syllabuses for design studio, design workshop and core design seminar courses are included in this section of the definitive programme document, beginning on the next page. Course submission requirements are additionally explained in Section 5 Teaching & Learning Strategies and assessment criteria are more explicitly explained in Section 7 of this programme document. Course Module syllabuses begin on the next page, in the order of design studios, design workshops, and core design seminars. These are followed by project briefs for 2019-2020.
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<th>Week</th>
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<td>Week 1 Kick-Off</td>
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<td>Phase 2 Seminar Writing Period Phase I Final Review</td>
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<td>3</td>
<td>Phase II Final Jury</td>
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**Term 1 2019:** Phase I & II (12 weeks)

**Introduction**

- **AA Premises reopen:** Thursday 2nd January 2020
- **Summer Closure:** Saturday 22nd August 2020 to Monday 31st August 2020 inclusive
- **Term 1 2019:** Mode of operation: 9:00-18:00 daily
- **Preparation**
  - AA Projects Review Exhibition
  - Phase I Verbal Assessments
  - Term 1 Introduction Meeting and Introduction
  - AA Capital Projects Review Exhibition Preparation

**Week 2 2020:**

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<th>Week</th>
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<td>Phase 2 Seminar Writing Period Phase I Final Review</td>
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<td>3</td>
<td>Phase II Final Jury</td>
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**Term 2 2020:**

- **AA Premises reopen:** Tuesday 1st September 2020
- **Summer Closure:** Saturday 22nd August 2020 to Monday 31st August 2020 inclusive
- **Term 2 2020:** Mode of operation: 9:00-18:00 daily
- **Preparation**
  - AA Projects Review Exhibition
  - Phase I Verbal Assessments
  - Phase I Final Jury Submission

**Week 3 2020:**

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<th>Week</th>
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<td>1</td>
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<td>Phase 2 Seminar Writing Period Phase I Final Review</td>
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<td>3</td>
<td>Phase II Final Jury</td>
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</table>

**Term 3 2020:**

- **AA Premises reopen:** Tuesday 1st September 2020
- **Summer Closure:** Saturday 22nd August 2020 to Monday 31st August 2020 inclusive
- **Term 3 2020:** Mode of operation: 9:00-18:00 daily
- **Preparation**
  - AA Projects Review Exhibition
  - Phase I Verbal Assessments
  - Phase I Final Jury Submission

**Week 4 2020:**

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<td>Phase 2 Seminar Writing Period Phase I Final Review</td>
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<td>Phase II Final Jury</td>
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**Student Holiday:** Saturday 14th December 2019 to Sunday 5th January 2020 inclusive

**Term 2 Commences:** Monday 20th January 2020

**Term 3 Commences:** Monday 13th January 2020
Morwell St. studio spaces are open 8.00am – 10.00pm seven days a week. The main AA building including the AA Library at 36 Bedford Square is open 10.00am – 9.00pm Monday to Friday and 10.00am – 3.00pm Saturdays. The AA Materials Workshop is open 10.00am – 6.00pm Monday to Friday.

Lectures that are a part of the AA Evening Lecture Series begin at 6.30pm in the main AA lecture hall.

Ref. the AA Weekly Events List

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### Table 1

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<tr>
<th>Time</th>
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Teaching and Learning Strategies

Teaching and learning strategies in the AADRL focus on the making of comprehensive design projects and the development of knowledge and skill associated with the making of design projects. These forms of knowledge and skill are outlined in Section 3.1.-3.4 of this programme document. Accordingly, the design, presentation, and documentation of design projects are three key teaching and learning strategies in the programme. From these a series of related strategies pursue the programme’s expected outcomes in thorough, innovative, ways that better relate the educational setting of a post-graduate design programme to the working demands of the profession and today’s highly collaborative, team-based, design disciplines. These are listed below.

Project Design & Evaluation
The principal learning strategy of the programme is the making of design projects, from which students gain experience, knowledge and skills required for making design projects. Design studio and workshop modules lead to the making of design projects by students working in small, self-organised, design teams. Design studio and workshop modules, including their modes of teaching and delivery, are summarised in a following chapter and module syllabuses are included in Syllabi & Briefs Section.

The central teaching strategy associated with the making of design projects is regular, tutor-led, design tutorials in which teams present ongoing design work, discuss and evaluate these results with course tutors in terms of project briefs included in study module syllabuses and outlined in the programme’s annual design agenda and prospectus. Teaching also includes discussion and evaluation of design projects during project presentations.

Teaching & Learning by Project Presentation
A related mode of teaching and learning related to making design projects is the regular presentation of these projects at scheduled interim and final project presentations, including the end of each academic term during phase I & II design workshop and studio modules.

Strategies for learning and teaching at project presentations revolve around the active exchange centred on design projects, between design teams responsible for having made the projects, course tutors, programme staff, and invited outside critics. All individual members of design teams participate in the overall presentation, and present and make clear their own role in the project design and research, which is also documented in course submissions. A key strategy within the AADRL for enhancing the learning and teaching potential of project presentations is a regular schedule for such presentations, which all members of student design teams actively prepare for and participate in. All projects made in the programme’s design studio and workshop modules are presented in their final form to not only programme staff but also outside visitors and critics. These design results are then thoroughly documented in project booklets and books prepared as final course submissions that are assessed by course tutors and programme staff.

Teaching & Learning by Project Documentation
A third key strategy for teaching and learning related to the programme’s design projects is its emphasis on the making of thorough, innovative, and well-crafted project documents. Strategies associated with project documentation are described in course requirements included in module syllabuses included in a following Section. Project documents include a combination of traditional paper panels, prints and models and electronic design media including digital models, animations, videos, and presentation movies. All design teams are required to prepare a combination of these documents for all of the programme’s design studios and workshops, and are presented at interim and final project presentations and included in final course submissions.
Students are required to prepare definitive project booklets and hardbound books documenting their design results, processes, and development stages, which are explained in relation to the project’s initial goals and expectations. Students are required to document final Phase II thesis projects in the form of a final project book, whose contents include not only the final design project but also materials able to relate early phase I design research undertaken in design studio and workshop courses to later stages of work in the programme.

Student design teams are expected to present this material in a readable, coherent, format; one that makes the work assessable to a larger audience of designers and practitioners. Design projects by AADRL students are regularly published by the school and internationally in books, journals and catalogues, and this strategy of making a project’s documentation an essential part of the project is a key means for achieving an important aim of the programme, the pursuit of design as a form of shareable, open, research, in addition to better preparing students for today’s design disciplines.

Team–based Teaching and Learning
A key, innovative, feature of the programme is its team-based forms of teaching and learning of architectural design. Students form small, self-organised, design teams that develop architectural design projects that address project briefs included as a part of design studio and workshop module syllabuses. By working in small teams, rather than individually and in isolation, students gain vital experience and understanding regarding the unique demands placed on team-based design projects; drawing the experiences of the studio much closer to the real working conditions of architectural and design disciplines today.

Team-based teaching is pursued in the form of agreed-upon, coordinated, annual design agendas led by programme directors. These design agendas, described in programme prospectuses included in annual Course Guides, have the dual purpose of relating the work of subsequent academic years, as well as providing a means for designing consistent themes, topics and learning objectives for the individual study modules each year. The year’s annual design agenda sets a specific design theme or topic to which the various study modules and project briefs are related and coordinated. In this way individual programme briefs are able to share larger themes and topics, allowing for comparative and consistent design results.

For an explanation of how team-learning strategies are assessed, see the Assessments part of this course guide.

Individual Learning
While the programme’s design studio projects, workshops projects and most seminar submissions are prepared by individual students working within small, self-organised teams, it is important to stress that a student’s personal experience (and final cumulative course marks achieved through the various study modules) in the programme remains highly individual. This is due to the individual routes each student takes during their sixteen months in the programme, typically moving between many different teams working within the programme's different study modules.

Because the team-based approach of the programme extends across all aspects of presentations, design work and final course submissions, students end up working in many different team arrangements, each of which is part of a study module's design project, presentation or course submission.

A student's successful completion of the course leading to a degree award requires that individual's successful completion of required design studio, workshop and seminar courses. While these are all, typically, undertaken by students working in small teams, these same teams do not, typically, extend across the different study modules. For this reason, individual overall student marks, as well as experiences, vary.
Students are required to undertake design projects in the programme's design studios and workshops in small, self-organised, teams. Normally, these consist of 3 individual students, and 4 student in exceptional circumstances; 2 is not encouraged as the group dynamics associated with team work are less pronounced than slightly more members; 5 or more is not encouraged as the increasing numbers tend to both reduce group decision-making abilities, and reduce the responsibility of each individual team member to the point that it is unnecessarily difficult to monitor the work of individual students.

Students are encouraged to undertake course presentations and submissions in the programme's design seminars in small, self-organised, teams, but this is not a strict requirement. As design seminars are intended as an important opportunity to elaborate and reflect upon the design results of the programme's studios and workshops, this form of learning outcome inherently allows for more individual response and participation. The large majority of the course submissions received for design seminars are done in teams; 10% or less are normally prepared by individual students in the programme's design seminar modules.

For the first compulsory design seminar all students are required to take during terms 1 & 2, students must select one of the programme's design core seminars. For the second, designated design seminar all students are required to take during terms 1 & 2, students have the option of taking a course in one of the other graduate design programmes, graduate programmes, or in the school's undergraduate general studies programme. If the student elects to take one of these courses, he or she makes an individual submission meeting the course requirements (normally, the preparation of a 3,000 word essay, or equivalent).

Annual Design Research Agenda Strategy
Rather than pursuing a series of openly different design topics or interests in the programme's individual courses, as is the case in many graduate design programmes (which seek to expose students to deliberately different, highly personal, forms of design teaching, the AADRL seeks instead to establish coherent overall agendas which all of its design projects can relate to. The purpose of this teaching and learning strategy is two-fold: firstly, it better allows the programme to achieve its principal aim and objective, the teaching and learning of architectural design as a form of open, sharable, research; and secondly, it is able to bring together the extremely diverse and varied personal backgrounds and experiences of the programme's international student body, by means of their having to address a set of shared design objectives, through which individual students then apply their previous experiences.

Each year programme directors establish a yearlong design agenda that outlines what these larger shared design objectives and aims of the year's work, which individual course tutors their design teams then pursue. The year's design agenda leads to individual tutors' preparation of module syllabuses and project briefs addressing that agenda. The coherence and coordination of this strategy is carried forward by the design teams working within individual study modules, by means of how each team positions its work in relation to project briefs. The design research agenda for 2019-2020, 'Behavioural Complexity', is outlined in the summary prospectus included in the first part of this Course Guide.

Design Studio Strategies
Design studio strategies relate to the making of detailed design projects. Teaching strategies include preparation and presentation of detailed project briefs outlining project goals, objectives, relationship to contemporary design theories and practices, and principal design constraints. Project briefs include descriptions of main project requirements, required primary and related secondary readings, project examples, and a general project timeline.
Learning strategies include the progressive development of projects by design teams working in stages leading to comprehensive final projects. Design teams learn through the planning of initial project research, design experimentation, testing, development of design techniques, and design systems and tools used to make design documents, media, models and other information. All design results are summarised in project booklets documenting the projects and submitted as required course documents.

Teaching and learning is pursued during regular, weekly, tutorials with the programme directors and course staff, reviewing project progress and results. Course tutors serve as project advisors for all design studios, monitoring individual and team performance and learning.

Learning in Design Studio courses demands an integration of a variety of design skills and knowledge, which is presented to and evaluated by course tutors in regular tutorials and summarised at key interim and final project stages in programme presentations to all course staff and invited outside critics, and in the preparation of required final course submissions, which document all design results.

Module syllabuses for design studio courses are included in the Syllabuses and Briefs section of this Course Guide.

Thesis Design Studio Module Strategies
Learning outcomes attained during Phase I Design studios are brought forward in Phase II as the basis for much more detailed, comprehensive, thesis projects undertaken in thesis design studio modules. Phase II work begins with the preparation of a Thesis Preparation Document, outlining the overall aims and project thesis, project brief, main lines of design development, anticipated design tools and techniques, and expected final outcomes for the completed thesis project. These design team-led documents serve to outline the expected roles of individual team members within the design teams, clarify principal design goals and techniques. Learning strategies relate to the experience students gain in the development of a complex, comprehensive design projects. Design teams learn through increasingly team-directed, rather than tutor-directed, design work, including the team’s own establishment of initial design concepts and goals, evaluation of results, development of techniques, and use of design systems and tools to make all design documents, media, models and other information. All design results are summarised in final thesis design project books, which document all project results and relates the final project to Phase I and II course work.

An important final learning strategy in the programme is the presentation of final Phase II thesis design projects to the entire school community in a public forum with programme staff and invited outside visiting critics, including a panel of internationally distinguished architects, critics and theorists. During this presentation all members of design teams are required to participate in an active explanation and discussion of key project results.

Module syllabuses for thesis design courses and Project Briefs for the 2019-2020 academic year are included in the 2019-2020 Course Guide.

Design Workshop Module Strategies
Teaching strategies and learning outcomes relate to the making of short-term, concise, design projects and experiments. Teaching includes preparation and presentation of detailed project briefs outlining project goals, objectives, relationship to contemporary design theories and practices, and principal design constraints. Project briefs include descriptions of main project requirements, constraints, and workshop topic.

Learning strategies include the development of short-term, limited-scope, design projects by students working in small, self-organised, design teams. Students learn through the use of new
and advanced design tools and techniques, which are tested in successive stages of project development. Teaching and learning is primarily pursued in the form of regular, weekly, tutorials with the programme directors and course staff, reviewing project progress and results. Course tutors serve as project advisors for all Design studios, monitoring individual and team performance and learning.

Learning in Design Workshop modules demands the development of design skills and knowledge, which is presented to and evaluated by course tutors in regular tutorials and summarised at key interim and final project stages in programme presentations to all course staff and invited outside critics, and in the preparation of required final course submissions, which document all design results.

**Design Seminar Module Strategies**

Teaching strategies and learning outcomes relate to weekly course readings and presentations that elaborate and reflect upon the design concepts, agendas, tools and objectives associated with the programme’s design studio and workshop projects. Teaching strategies include the preparation of weekly lectures introducing key theoretical issues and contemporary project examples related to materials covered in weekly readings. Learning strategies include the development of knowledge and skills that enable the critical analysis and evaluation of contemporary design projects and their theories. Learning outcomes are achieved through the completion of weekly readings and participation in group presentations and discussions related these reading to the student’s own design studio and workshop projects, as well as contemporary design practices and theories.

Required final course submissions in Design Seminars provide an opportunity to extend these learning strategies in the form of coherent written analysis and evaluation of design projects, work and theories in a setting that allows for reflection and elaboration upon the more direct project-related results of the studio and workshops. These written course submissions are made in the form of written 3,000 word essays. Phase I students are required to successfully complete one seminar submission in Term 1 (end of Term), and two seminar submissions in Term 2 (end of Term).
AA Student Handbook

Please refer to the AA School Academic Regulations for a complete description of Assessment procedures, submission, re-submission, pastoral care, quality assurance and other related topics, as set out with consistency in the AA Graduate School. Listed below are issues pertaining directly to the AADRL M(Arch) in Architecture and Urbanism programme. Students should refer to both documents as a reference guide.

Assessment Procedures

Students are assessed by individual course tutors and given a course mark for all required and designated courses, called study modules, which they complete in the programme. The breakdown of study modules with a 'required' or 'designated' status is summarised in the Programme Structure part of this course guide. Student performance in design seminars and other course sessions with an 'optional' status, which students are not required to participate in or submit course work for, is not assessed. Examples of these 'optional' seminars or sessions include design software seminars introducing and tutoring students who do not have the previous experience or levels of skill and understanding that others in the class have upon their arrival.

Students are assessed individually, by individual course tutors, based upon the quality of their final course submissions, required of all study modules. The weight of each course mark is summarised in the Table included in the 'Modules & Credits' part of this handbook.

Different assessment criteria apply to the programme’s different study modules, and are summarised below in this Section of the programme document. Course submission requirements for study modules are explained in module syllabuses included Syllabi and Briefs section of this Course Guide.

Course Participation

Participation in design studio and workshop modules is undertaken throughout the term in the form of design tutorials held in the programme's studio spaces and at interim/final project presentations, which constitutes the participation of design studios and workshops. The assessment procedure in the programme's design studio and workshop courses are course submissions made at the end of study modules, which are read and marked by course tutors. Assessment procedures for design seminar modules are also based on course submissions completed at the end of the course, which is reflected in the greater weight given the final course submission in the student’s overall mark for the course.

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

Design tutorial and presentation assessment procedures are explained in the following part of this programme document.
Design Tutorial Assessments

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

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

Design Presentation Assessments

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

Course Submission Assessments

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

Design Workshops

A wire bound booklet documenting all aspects of the project results in printed and electronic formats. The project booklet shows key project images, drawings, models, diagrams and an accompanying text explaining key project design techniques, methods and results. All images must be captioned, and a brief introductory text must explain the project clearly, in terms of: 1) overall aims; 2) research materials; 3) design techniques & tools; 4)
the contribution and role of individual team members within the design team; and 5) a brief summary of anticipated direction(s) for later stage(s) of work. Two copies of the project booklet are submitted; one high-quality colour wire bound print version; and a second inexpensive black and white copy that will be returned following assessment with written comments and suggestions made by the course tutor. Teams are additionally required to submit a set of CD’s containing: 1) a copy of the .pdf and document files for the printed submission; 2) final Director, Flash or multi-media presentations; 3) copies of key digital models in software file format.

Design Studios & Thesis Design Studios
Course submission requirements for design studios are the same as design workshops, with the additional requirement that studio documents, typically in the form of hard–bound books, document not only the key features of the design project (outlined above in design workshops); but as well, more fully reflect on the relationships understood by the design team in relation to the programme’s design seminars and more general, and personal, stated design interests and objectives.

Design Seminars
Submission requirements for the programme’s design seminars are a 3,000 word written or equivalent essay. This document can be a written essay or include information, graphics and written commentary that elaborates upon the theoretical and technical design issues associated with module readings presented and discussed in the course. Essays must follow graduate school standards regarding research, citation and writing quality consistent with graduate–level educational practises.

Two copies of the essay or booklet are submitted; one high–quality color wire bound print version; and a second inexpensive black and white copy that will be returned following assessment with written comments and suggestions made by the course tutor. In select instances, submission can be made in the form of electronic multi–media or web site. All course submissions are double–marked; by the course tutor and a second member of programme staff. Any differences of opinion in submission marking noted by the submissions second reader are noted and discussed with the course tutor, who agree upon a final and appropriate mark.

Submission, Re–submission & Non–submission
Please refer to the AA School Academic Regulations for a complete description of submission and re-submission procedures in the Graduate School.

Team Assessment
Overall assessment of individual students is made in study modules based upon individul and team course submissions. The programme’s definition of participation is described also in the programme structure section of this course guide and relates to the ways in which individuals are assessed in design tutorials and presentations. A key feature of the programme is its pursuit of team–based design projects in its design studio and workshop modules. In addition to the assessment of individual participation within these teams, the formal course submissions required for these courses are, like the projects themselves, required to be the work of all members of the design team. The assessment procedures outlined above regarding regular design tutorials and presentations with course tutors give tutors an opportunity to assure that all members of a design team are actively engaged with the project work.

Final course submissions, jointly prepared by all design team members for design studio and workshop projects, include sections that summarise the key roles played by individual members of the team, which clarifies shared and individual responsibilities undertaken within the project, which have already been observed and assessed by course tutors during design tutorials and presentations. Final course submission marks are given equally to all project team members for any
given course submission; requirement that seeks to reinforce the shared, collaborative aims and objectives of the programme’s approach to the teaching and learning of architectural design.
Programme Resources

19 20
AA School Academic Regulations
Please read this summary of AADRL resources along with the 2019-2020 AA Student Handbook, in which a full description of resources at the AA are detailed. The Student Handbook outlines the AA's Library, Computing, Workshop, Prototyping and Digital Photo facilities. In addition, the AA's pastoral care and support structure is documented in the Student Handbook. Below are listed the resources related specifically to the AADRL.

Past Projects
Students and staff in the programme are supported by programme resources, as well as facilities shared by the entire AA school community. These include:

Books & Project Documents
Specialised books and documents relevant to ongoing studio work are kept on reserve in the AADRL studio spaces, and made available to students by the Programme Directors. This includes books and other documents related to the year's studio projects, including previous design projects and results. Copies of all essential and some recommended course readings related to all study modules are kept on reserve in the school library.

An extensive back catalogue of previous work in the AADRL studio is maintained in several different forms, and made accessible to all current students. Hardbound Thesis design project books by previous design teams are kept on reserve in the school library, and are made available to students by programme directors for extended study. Physical and digital models, large-format presentation panels, and other media documenting previous design projects in the programme are routinely kept in the programme's studio spaces, and made available to current students.

Electronic versions of these project documents are archived on the programme's network servers, which students can freely download to gain further understanding of these projects. Importantly, project files in original file formats are also archived and made available for download, providing a valuable resource for learning software modelling, scripting and programming skills.

www.aaschool.ac.uk
The programme's dedicated web site, drl.aaschool.ac.uk, contains hundreds of documents accessible to current students of the course as well as the public. These materials include copies of each year's programme prospectus, module syllabuses, project results, presentation photos and videos, news of recent events and other materials. The site includes a calendar of key upcoming presentations and events, and links to a wide array of venues in which the work of the programme has been published, exhibited and presented.

Dedicated Studio Workspace
A key physical resource for the course is its dedicated, three-floor studio building located at 16 Morwell St., WC1. The majority of work done by students on individual design projects is done in the building's studio spaces, including the programme's main teaching and learning activities. The studio is open from 10:00am until 10:00pm seven days a week, and is located within the main campus of the AA School buildings in Bedford Square.
Studio Project Clients
During the past ten years the programme has maintained links with consultants, suppliers and institutions whose participation in, support of the work of the programme continues to contribute to the academic culture of the programme. These have included Ove Arup & Partners, Microsoft U.K., M & C Saatchi, Virgin, Razorfish U.K., and other companies who have served as quasi-clients for the AADRL’s design studio projects. We have additionally worked with other well-known cultural and commercial institutions, including the ICA, the Barbican Centre, Heathrow Airport, and currently with the organisers of the 2010 Expo in Shanghai.

These and other institutions have served as quasi-clients for Phase I & II Thesis design projects, allowing design teams access to existing office and working environments as the basis for initiating design research into the use of existing spaces and organisational interaction. Upon completion of studio projects teams presented or exhibited their projects to members of these companies. Additionally, Ove Arup sponsored the overseas production of 3d stereo lithography models of Phase II thesis projects.

Consultant Support
Adams Kara Taylor
The DRL continues its relationship with AKT, a dynamic structural engineering firm working with some of the best London-based architects. AKT partner Albert Williamson-Taylor and Ed Mosely act as a structural consultants for design workshops and studio projects. This continues the work that AKT partner Hanif Kara started with the DRL and in which its research and development department, assisted by Djorge Stanovic in 2005-06, conducted a Phase I workshop in 2005-2006, introducing the DRL to Gehry Technologies’ Digital Projects software application.

Robotics Consultant
Robots.IO
The DRL continues its relationship with Robots.IO, a robotics consultancy and software developer for industrial robots. They are creators of IO, a Grasshopper plugin that provides an intuitive environment for developing new robotic processes. The company is a spin-out from Robofold, a unique London based robotic consultancy and fabricator, with a patented technology for folding curved sheet metal with industrial robots. The technology pushes the boundaries of parametric manufacture for architecture, art and design.

Ove Arup Building Group 4
Led by Bob Lang, Ove Arup BG 4 continues to make available to Phase I & Phase II thesis design teams consulting engineers and other specialists on an informal basis, who assist in the development of detailed design proposals. Members of BG 4 attend key project presentations. Tutorials can be arranged with individual teams upon the initiative of students to establish direct consultancies with specialists at BG4.

Festo U.K.
Beginning in 2002 the programme began a working relationship with Festo’s U.K., located in Wolverhampton. Working closely with Phase II Thesis Design teams during 2002, Festo staff designed software operating systems and manufactured hardware components for a series of robotic project prototypes built by Phase II MArch (A&U) Thesis Design teams. Festo is the world’s leading industrial robotics manufacturer, and is able to serve as a valuable professional resource in the development of work related to the programme’s ongoing ‘responsive environments’ design studio agenda.

Other Academic Institutions
During the past twelve years students and staff of the AADRL have been visiting lecturers, guest professors and critics at some of the world’s leading graduate design programmes; whose faculty...
and staff have in turn been visitors to the MArch (A&U). These institutions include: Akademie der Bildenden Kűnste in Stuttgart; The Berlage Institute Graduate Design Laboratory, in Rotterdam; The Bauhaus, in Dessau; The Graduate School of Architecture at the University of California at Los Angeles; SCIARC, the Southern California Institute of Architecture; Columbia University Graduate School of Architecture and Planning; as well as many others. In 2010-11 we will visit and work with students and staff at universities and institutes in Shanghai. The DRL has maintained a relationship with the Industrial Design Engineering department of the Royal College of Art, where DRL Course Tutor Tom Barker is the head of the IDE department, jointly sharing grant funds.

Exhibition & Symposia
Recent exhibitions and symposia featuring the programme’s student work have been held at the Venice Biennale, Archilab in Orleans, France; the Beijing Biennnial (2004, 2006); London’s Institute of Contemporary Art, the Royal Institute of British Architects, & the Barbican Centre; the Bauhaus; Graz University; and other locations in Europe, the US, Latin America and the Far East. For many of these exhibitions the programme has been generously supported by funding from overseas institutions including, most recently, an EU grant administered by the Steirisch:bst European Capital City Programme 2003, in Graz, Austria., to partially fund the design and production of MArch (A&U) models included in ‘Latent Utopias: Experiments in Contemporary Architecture’ at the Johannes Landesmuseum in Graz.

Materials & Suppliers
The MArch (A&U) continues to be generously supported by a number of materials suppliers who give major discounts to the costs of their materials and services in support of the work of the programme. Over the past few years these have included: The Printing Centre, London; Covent Garden Laminates, London; Quality Assured Industrial Services, Ltd.; Z Corporation in the United States and the U.K.
SYLLABI ADDENDUM

19 20
Studio Project Emphasis

Design Studio projects are the central form of teaching, and learning, in the MArch (A&U) and account for the large majority of student’s time and course load. During their sixteen months in the AA DRL students work in the Morwell St. studios on projects during each of the three terms of Phase I, in their first academic year, and return the following September/October to complete a Thesis Design studio project during their fourth term, which constitutes Phase II of the programme.

The organisation of the courses in the programme leads to an increasing emphasis placed upon studio design projects. Students take a combination of design seminar and workshop courses during terms 1 & 2, which provide an introduction to important theoretical issues, design skills, and software systems. These are explored in term 1 within a series of three linked design workshop projects. The programme’s larger, longer, design studio courses, with their associated projects, start at the beginning of term 2, emphasising complex design projects that carry forward throughout terms 2 & 3. Term 3 focuses entirely on the Phase I Studio project, which is carried forward in the form of a Thesis Design Project the following September/October during the fourth and final academic term in the MArch (A&U).

Team-based Design

All design studio and workshop projects are undertaken within small, self-organised, student design teams; a crucial and distinguishing feature of the MArch (A&U)’s approach to design. Team-based design work is a difficult, demanding process, because of the ways in which it requires negotiation and coordination between different individual members of the programme – a situation made even more challenging in the programme given the internationally-varied backgrounds and previous experiences characterising the students working in the studios. At no point in the year do studio tutors assign teammates or group configurations, which are left to the initiative and interest of each student individually. The MArch (A&U) has been designed so that many short, introductory, projects and presentations (in workshops and seminars) allow students to quickly get to know one another by working with them on different short-term exercises. It is expected that by January everyone has gotten to know everyone and settled into team configurations for the beginning of the Phase I Design Studio projects that will carry forward until the end of Phase II.
Syllabuses & Briefs 2019-2020

Phase I design research agenda: Constructed Agency (v.2)

Our new agenda, Constructing Agency, explores expanded relationships of architecture by considering the future of living, work and culture. The aim of the research is to expand the field of possibilities through exploiting behaviour as a conceptual tool in order to synthesise the digital world with the material world. Advanced computational development is utilised in the pursuit of architectural systems that are adaptive, generative and behavioural. Using the latest in advanced printing, making and computing tools the lab is developing pioneering work that challenges today’s design orthodoxies. Architecture that is mobile, transformative, kinetic and robotic are all part of the AADRL agenda with the aim to expand the discipline and push the limits of design within the larger cultural and technological realm.

Phase II thesis design research agenda:
Constructed Agency (v.1)

Future Culture
Theodore Spyropoulos’ studio explores how behaviour-based design methods can be used to reconsider cultural projects for today through the development of self-aware and self-structuring practices that see architecture as an infrastructure to address latency and change.

Future Work
Agent-based Parametric Semiology, Patrik Schumacher’s studio, contributes to the ‘semiological project’ which promises to upgrade architecture’s communicative capacity within the work environment and thus the social functionality of the designed/built environment, through designed architectural code that manifests itself via crowd-modelling of the agent’s behavioural rules.

Future Living
Shajay Bhooshan’s studio, House.Occupant.Science.Tech.data (HOSTd), explores robotic fabrication while enabling mass-customisation strategies that can compete with contemporary co-living models in highly productive cities. The promise of mass-customisation integrated with new models of housing now allows for the generation of a vibrant community fabric.

Studies 2019-2020 Course Syllabuses
These describe the shared, recurring features of Phase I and II design studios, explaining course procedures and general background aims, assessment criteria, etc. in detail. For 2019-2020 these include:

- Phase I Design Studios DSt 201 & 301
- Phase II Thesis Prep Document DSt 401
- Phase II Thesis Design Studios DSt 402

Project Briefs
Appended to each of these syllabuses is a Project Brief written by each tutor individually, which specifies in greater detail the project and design approach of that tutor’s group. For 2019-2020 these include:

- Phase I Bhoosan Project Brief
- Phase I Schumacher Project Brief
- Phase I Spyropoulos Project Brief
- Phase II Bhoosan Project Brief
- Phase II Schumacher Project Brief
- Phase II Spyropoulos Project Brief

Syllabuses & Briefs for studios follow.
Course Introduction & Aim

The MArch (A&U)'s design studio courses are the core of its teaching and learning. The programme directors lead design studio agenda, which is taught by studio course tutors. The phase I design studio is organised in two term–long modules, titled Design Studio I & II. Design Studio I is taught in Term 2 and Design Studio II is taught in Term 3. The focus of the course is on the development of design knowledge and skills related to the making of comprehensive, detailed, architectural design projects. The main outcome of the course is a detailed design project, which is developed in stages during both terms of the course.

Design Studio I involves initial analysis and research of project constraints, preliminary brief, area, site and client analysis; and preliminary design stages. Design Studio II involves further design development, testing, coordination of parts and different systems, the making of detailed design documents and models, and final evaluation and presentation of the project. Design results achieved at the end of Design Studio II DS 301X are carried forward by design teams the following autumn in the form of thesis design projects made in DS401X.

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

Project Briefs

Each course tutor will write his or her own Project Brief, stipulating a set of specific design objectives, criteria, site, etc. which his or her group will focus on during the design studio. Students form small design teams of 3 (and sometimes 4) people each, and select one of the Project Briefs and tutors to work with in the development of design projects that are the expected learning outcome of Design Studio I and II. Students are encouraged to carry forward the design results achieved in previous term’s design workshop projects, while also working in the same design teams, but this is not a requirement. Project Briefs are handed out at the beginning of the Design Studio I, and differ according to each individual tutor’s approach to the studio syllabus.

These project briefs become the basis for all subsequent design work undertaken by the design teams during Design Studio I and II. The details of project briefs vary from tutor to tutor, but all three share the same overall course aim, topic, schedule of work, assignment, expected results, course requirements and assessment criteria. These are explained below.

Design Team Work

All work on design studio projects is again undertaken by the design team working together. Project goals and specific design objectives are established and then developed by the design team by addressing the project brief handed out by the course tutor. The project presentations and the final course submission required at the end of the term are undertaken jointly by the individual members of design teams working together in a coordinated and integrated way in the programme’s studio space. Individual team members’ role and contribution to the project is detailed in design tutorials with the course leader, during design presentations, and in the final course submission materials due at the end of the course.

Course Schedule & Readings

DS 201X Term 3

Stage 1: Team Formation & Project Analysis
Weeks 1–3 (Term 3)

Work on the project begins with a detailed analysis of the project brief and formation of initial team responses to the project brief distributed by course tutors at the beginning of the course. The design team prepares initial project statements summarising design goals, objectives, and an outline for the specific design processes, tools, and media the team will use to undertake initial design analysis of the project programming, site, clients, and other specific details of the project. These initial analyses are based on an outline the team prepares, working with course tutors, which distribute various work tasks between team members and design systems; including diagramming, information gathering, site documentation; precedent analysis, and summary of relevant design results and discoveries made during design workshops last term.

Stage 2: Urban & Programme Analysis
Weeks 4–6

Preliminary strategies outlined in stage 1 are used as the basis for establishing the criteria used to undertake detailed site and brief analysis for the proposed project. The team undertakes various forms of investigation into the physical, social and material features of the project site and situation, studying how relevant existing architectural spaces and urban surroundings are used; how the site relates to existing and proposed infrastructures. Initial design concepts are explored in the form of graphic diagrams, charts, statistical models and informa-
tion maps made by the design team in order to summarise the teams’ understanding of the guiding project parameters constraining the project.

Stage 3: Diagrammatic Exploration
Weeks 7–12

As the main project constraints become better understood through initial site and programme analysis, initial design ideas and alternative design strategies are developed for potential solutions to the design problem outlined in the project brief. Design teams undertake a series of studies, in various design media, which begin to visualise spatial strategies, structural ideas and their potential effect on the social life of the proposed project. Alternative building programming strategies are explored, showing how the project can adapt itself to proposed activities and use. Alternative structural and material ideas are used to translate the guiding ideas of the project into material solutions. An end–of–term presentation summarises all initial design research and presents an initial set of diagrams summarising project ideas and design objectives.
Course Schedule & Readings

DS301X Term 4

Stage 4: Initial Design & Research
Weeks 13–15 (Weeks 1–3 Term 4)

Alternative designs are visualised and modelled in relation to their immediate urban surroundings, showing how the project will affect existing circulation patterns, uses, and future development. More specific details are studied regarding the various systems that need to be accommodated in the project, including building structure, enclosure, openings, entrance, internal divisions, different uses, and potential for future growth and change. From an initial catalogue of many potential design solutions, choices are made for specific designs and systems to be further developed. Selected systems are developed in a step–by–step process leading to more detailed designs.

Stage 5: Design Development and Integration
Weeks 16-18 (Weeks 4–6 Term 4)

During this stage different strategies for solving the problems related to specific features of the project, including overall building structure, enclosure, growth, internal sub–division, etc., are preliminarily integrated to one another, resulting in an increasingly definitive, comprehensive, design proposal. As the project becomes more clearly modelled, drawn and visualised, its performance is then tested, repeatedly, in relation to the design team’s initial design objectives. A combination of physical and digital modelling processes is used to create a detailed project design, which is fully visualised in terms of the project’s brief, site, and proposed uses. The final project is presented at an end–of–year studio presentation in a public forum to programme staff and invited outside critics.

Stage 6: Project Documentation
Weeks 19–20 (Weeks 7 & 8 Term 4)

Following the final project presentation a final two–week stage is used to make a comprehensive project book documenting the final project and creating final drawings, models and animations included in an end–of–year exhibition that opens on the last day of stage 6, at the end of the academic year. During this stage diagrams, drawings and models of the project are further refined and formatted in order to fully document the project and allow the design team to make a final internal assessment and evaluation of the design results, which are documented by the team in relation to initial design objectives, goals, earlier projects and other skills and knowledge learned during terms 1, 2, and 3.

Course Requirements

All team members must attend all class sessions and work with project teammates on the joint final project due at the end of the workshop. All team members must visit chosen project site(s) for information gathering, participate in all design tutorials, interim and final presentations, and assist in making the joint final course submission, due at the end of the term.

Tutor project briefs will stipulate any special project requirements related to the project. More generally, final project requirements include: a detailed final large–scale physical model, which has the capacity to be moved, re–arranged, or directed so as to demonstrate inherently dynamic properties of organisation. The final material model, built by the design team in the studio and/or using main school workshop facilities, should be based upon initial test models, diagrams and other team data gathered during initial stages of the workshop. All projects are to be pursued in the form of small, self–organised, teams of three or four people. Teams are required to meet with the course tutor at least twice a week during regularly scheduled studio times, in order to present progress on the project. In addition to weekly tutorials with AADRL Staff all teams are required to present their work at interim and end–of–term presentations. These presentations typically consist of a thirty–minute summary of key project ideas, documents, models, images and developments, which serve as the basis for a discussion with the critics. All teams are required to make a course submission. Design Studio 201X course submissions are due at the end of Week One in Term 4 and Design Studio 301X course submissions are due at the end of Term 4.

Course Submissions

The printed format consists of an A5 bound project booklet documenting key project images, graphics, models, diagrams, quantitative data and an accompanying text, not exceeding 3,000 words. All project images must be captioned, and a brief introductory text must explain the project clearly, in terms of all five of the following features of the work: 1) the design team’s design objectives, presented in relation to the project brief and workshop syllabuses; 2) research materials, including information gathered by the design team; 3) design techniques & tools used for the making of the project, including the evolution of the design project; 4) the contribution and role of individual team members within the team; i.e. who did what and how was the work of the team coordinated; and finally 5) a brief conclusion stating possible lines of development for the project. Project booklets should be prepared in appropriate page layout software applications, including Adobe InDesign.

The Course Submission must be made in two parts:

Part A: Hard Copies
Two paper copies of the final project document: one high–quality, printed, color version hard bound and the other an inexpensive b/w copy that will be returned following assessment with written comments and suggestions made by the course tutor. Design Studio 201X
submissions are a wire bound booklet. Design Studio 301X submissions are a more detailed hardbound book format. The cover page of the project booklet MUST include: the workshop name, project brief, course tutor name, design team student names, and final project title selected by the design team to name the project.

Part B: Digital Copies
Additionally, all teams are required to submit a set of CDs containing: 1) copies of files for the Hard Copy course submission in two different formats, including BOTH the final .pdf file used to print the final hardcopy AND a folder containing the Quark ‘Collect for Output’ or Adobe InDesign ‘Package’ files, which is a copy of the final document file plus linked image and font files; 2) a copy of the team’s final DirectorMX, FlashMX, Powerpoint or other multi–media file used for the final workshop presentation; and 3) a folder containing copies of all project models made in original application formats (such as 3dStudio or Maya).

Learning Outcomes
At the end of the Course students are expected to:

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

Assessment Criteria
Final marks for the course are based upon final course submission. The Course submission requirements are listed above. Normally, all team members receive the same course mark, which is marked on the final course submission with written commentary. Individual student marks can be lowered in relation to team members in extreme cases. Assessment criteria for course submissions include:

1. demonstration of an understanding of key concepts and issues related to the making of responsive architectural designs, as described verbally in design tutorials and presentations, and summarised graphically in the project document prepared as the final course submission
2. demonstration of clear, articulate, design objectives, goals and processes; demonstrated in relation to design project analysis, potential alternatives, and interim stages of design development
3. demonstration of an ability to evaluate and critically assess specific design outcomes; in relation to initial design goals, comparative methods or techniques, or in relation to essential or recommended course readings
4. display of clearly documented design skills, thinking and reasoning, including the ability to work with team–mates in the development of the project
5. clear demonstration of an understanding of the design potentials and potential further application of the work, shown in the summary of the final workshop project
6. demonstration of design documentation skills, including clearly organised and structured design media including models; diagrams and other graphics; final project documents describing all aspects of the workshop project, prepared in a timely, well–organised manner with a clear and concise layout of graphic materials, a range of well–crafted physical models, and clear, concise, written summary.

Course Submission Schedule
A course submission for design studio I DSt 201X, documenting all aspects of the design research work made jointly with all team members, is required on the first day of Week One in Term 3. The submission deadline is intended to allow design teams time over the holiday break between terms to complete the course submission. Submission must be made to the Graduate School Co–ordinator, in the Graduate School Office, who will stamp each submission and record the date and time of submission. For late submissions please refer to the AA School Regulations on the AA website (http://www.aaschool.ac.uk). A course submission for design studio II DSt 301X is required no later than the final Wednesday of summer term.

See also the attached project briefs by Bhooshan, Schumacher & Spyropoulos for 2019-2020 Phase I studios. Final project details & schedules will be handed out at the beginning of term 2.
The societal function of urban and architectural design is the innovative ordering of social processes. This function depends on the communicative capacity of the designed environment. The enhancement of this capacity poses the Semiological Project: to design the architectural project as a spatio-visual language.

The life process of society is a communication process that is ordered via rich typology of communicative situations. The built environment is thus society’s physical memory; it functions as a graphic language or map that we all intuitively navigate to find relevant communication partners in pre-structured situations. The designed settings/spaces are themselves communications: they are communications that define, premise and prime the communicative interactions that are expected to take place within the respectively framed territory. Building is communicating.

The studio will start by researching various visual languages like traffic sign systems or graphic notational systems as source domains for semiological design. The design of an architectural semiological system implies the build-up of distinctions with spatial position, shape, morphology, materiality, colour, etc. as registers of semantic encoding. The basic unit of architectural communication is the single space, zone or territory as architectural sign defining a particular, distinct social situation.

The programme to be accommodated is best understood in terms of interaction patterns of the users/participants. These patterns of communicative interaction can be modelled via scripted agents that respond to the coded environmental clues. This implies that the meaning of architecture can enter the digital model (design medium) and thus becomes the object of cumulative design elaboration. The system of signification works if the agents consistently respond to the relevant positional and morphological clues so that the behaviours to be expected can be read off the articulated environmental configuration. As agents cross significant thresholds their behavioural rules are modulated. Territorial distinctions thus order and coordinate interaction patterns.
What once served to categorise the natural and the man-made worlds have been rendered obsolete. When distinctions of the real and artificial, human and non-human fail to offer insight, the challenge is how best can we design for a latent and unknown world. Within this uncertainty, new conceptual terrains emerge that raise questions of agency and intelligence. Hans Hollein’s provocative 1968 contribution in the journal Bau titled ‘Alles ist Architektur (Everything is Architecture)’ may offer some insight when he stated, ‘Man creates artificial conditions. This is architecture. Physically and psychically man repeats, transforms, expands his physical and psychical sphere.’

It is the speculative capacity to invent and construct alternative models that affords architecture its capacity to engage and make things accessible, prototyping ideas as much as the host environments that may play witness to them. The desire is to see architecture as active, anticipatory and adaptive through continuous exchanges that are real-time and behaviour-based. Through this expanded field of understanding we can consider materiality as something that is not inert and finite but that is life-like, evolving and aware. If Hollien believed ‘All is Architecture’ today our studio would argue my mantra that, ‘All is Behavior.’

Architecture over the last fifty years has witnessed a revolution within communication, computation and technological progress. It is important to remind ourselves that architectural experimentation has always been an active participant in exploring, prototyping and speculating our relationships with these technologies. To address these challenges we must construct frameworks that allow us to co-construct solutions. Computation and design research affords us this capacity to create and communicate new solution spaces and understandings. Environmental conditioning, machine learning and collective building will challenge the next generation of designers to explore computation beyond form and geometry. Architecture will construct new territories for enquiry; programmable matter, emotive spaces, behavioural ecologies may signal just a few. The studio will approach architecture as an infrastructure and technology as culture. Towards a behavioural architecture…

The three-year research agenda of the studio, starting from January 2018, is motivated by the following observations regarding contemporary design, fabrication technologies and trends in contemporary living.

1. Digital design and fabrication technologies are maturing with significant progress being made by researchers in the fields of computational architectural design (Thomsen et al. 2015), computational geometry (Adriaenssens et al. 2016), structural design (Anon 2015), robotic manufacture (Reinhardt et al. 2016) etc.

2. Social, economic and political conditions in large, high-productivity cities such as Tokyo, London, New York, etc. have evolved (Jon Earle & Irene Pereyra, IKEA 2017) such that the market conditions are now suitable (Bardakci & Whitelock 2003) to engender a demand for mass customised housing (Chong et al. 2009; Gann 1996).

These two observations together yield the premise of the research agenda: high-productivity cities can be a prime avenue for the application of the maturing domain of digital design and fabrication with the aim to develop a real-estate solution for contemporary living.

In other words, the promise made by seminal design research and polemic publications on mass-customisation and housing such as Negotiate my boundary (Steele 2006) and the generation of a vibrant community fabric of a residential community as seen in The Autopoiesis of Architecture: A New Framework for Architecture, Volume 1 (Schumacher 2002) can now indeed be realised.
Course Introduction & Aim

Phase II studies in the MArch (A&U) begin with the submission of a detailed thesis design project proposal, submitted by each Phase II thesis design team in the form of a wire bound project booklet. This thesis prep document is prepared independently by the Phase II thesis design team as a proposal outlining the overall project scope and design objectives of the Phase II thesis design project, which begins immediately after submission of the thesis prep document.

The aim of the thesis prep document is to spell out fully the basis for the Phase II thesis project. The document serves as a bridge between phases I & II in the programme, in the sense that it aims to summarise the key design results, processes and interests of the design team gained during their phase I design workshop and studio projects, which are formulated as a design project brief for the Phase II thesis design project.

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

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

Thesis Design Studio begins with completion of a thesis design preparation document (see module syllabus DSt 401X) submitted to course tutors for review and approval at the end of week one of Term 4 and then leads to further analysis and research of project constraints, preliminary brief, area, site and client analysis; and preliminary design stages. Design Studio II involves further design development, testing, coordination of parts and different systems, the making of detailed design documents and models, and final evaluation and presentation of the project. Design results achieved at the end of Design Studio II DS 301X are carried forward by design teams the following September/October in the form of thesis projects outlined in the form of a project brief booklet in DSt 401X and then designed and developed during DS402X.

Project Briefs

Each design team writes their own final project brief for the project, stipulating a set of key design objectives, criteria, site, etc. which the project will focus on during its development in the course. This project brief is submitted in the form of a thesis design proposal document, submitted to course tutors at the end of week one in the Term 4. The project brief must address the results of design studio projects completed at the end of phase I, and relate to the project briefs distributed during phase I.

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

Design Team Work

All work on thesis design studio projects is undertaken within small, self-organised, design teams working together on a single design project. Project goals and specific design objectives are established and then developed by the design team by addressing the project brief. The project presentations and the final course submission required at the end of Term 4 are undertaken jointly by the individual members of design teams working together in a coordinated and integrated way in the programme’s studio space. Individual team members’ role and contribution to the project is detailed in design tutorials with the course leader, during design presentations, and in the final course submission materials due at the end of the course.

Course Schedule

Students coordinate production of their Phase II thesis design document during the summer holiday between phases I & II of the programme. Normally, this work is initially discussed between team members in the early weeks of the summer, after which individual team members are assigned responsibility for preparing specific parts of the document. The preparation of the document is led by the design team working together, based upon previous discussions with the phase I design studio course tutor, as well as discussions held with other programme staff and invited outside critics during the final phase I design studio presentation, as well as previous project presentations.
Individual members of the design team return to the programme following the summer break between phases I & II and move into the studio at the beginning of Term 4. During week one of Term 4 the document is finalised by all members of the design team and submitted to the course tutor for assessment and approval prior to commencing on the Phase II thesis design project. The specific requirements of the thesis prep document are outlined below.

Course Requirements
There are no formal class sessions held for the preparation of the final thesis prep document, beyond the first studio sessions of week one during autumn term (4) of the Phase II thesis design studio. All members of the design team are required to attend those sessions, as well as regularly meet with design team members during earlier preliminary planning sessions held over the summer break. These sessions are a combination of informal meetings and online communication during which all of the required parts of the document are negotiated between team members. There is no course credit given for the submission, which is intended only to properly ground and prepare the basis for the Phase II thesis design studio project.

All thesis prep documents are prepared in small, self-organised, design teams of three or four people. These teams are the same groups of students that will carry forward the project as Phase II thesis design projects. All members of the design team must participate in the preparation of the document, attend all planning meetings held within the team to coordinate and outline these documents, attend week one design sessions in the design studio, and design tutorials held during week one with course tutors.

All teams are required to make a course submission, due Term 1 (the 13 month of the 16 month programme) per the date set by the school, refer to course schedule on page 122.

Course Submissions
The printed format consists of an A4 or smaller wire-bound project book, documenting key project images, graphics, models, diagrams, quantitative data and an accompanying text, not exceeding 500 words. All project images must be captioned, and a brief introductory text must explain the proposed Phase II thesis design project. The emphasis of other course submissions in the AADRL is on the summary of design results. The focus of this submission is on the clear, coherent, planning of a design project that will be undertaken during the Phase II thesis design studio (DST 402X).

Accordingly, this submission is designed as a concise planning document of a project, and must address the ways in which the proposed thesis project will build upon and relate to the phase I design studio results.

Format
Two wire-bound copies of a project book: the first a high-quality, printed, colour version and the second an inexpensive black-and-white stapled copy which will be written and commented upon as a part of the course tutor assessment. The first copy will be kept as a record to be used as a guideline to assist the course tutor in final assessment of the Phase II thesis design project at the end of Phase II.

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

1. Project title, location, and other information
2. Statement of overall project objectives, design strategies, design techniques, and project goals
3. A brief summary and critical evaluation of phase I design studio results; a short summary of what the design team thinks are the strongest, and weakest, parts of the work and a short summary of the main changes in site, brief, or design agenda anticipated for the Phase II thesis design project
4. Site Description, including photographs, maps and other images
5. Site Analysis, including diagrammatic studies of issues relevant to the project
6. A definitive project brief, including categories of use, events and activities that the project will address. Overall general project areas and approximate size
7. Description of project potentials and relevance to contemporary problems of spatial formation and urbanism
8. Comparative presentation of relevant projects; historical or personal. Include projects that demonstrate applicable design techniques (including work from Phase One) or programmatic relevance to the project.
9. An outline of representational techniques and media to be utilised, including a list of anticipated drawings (including scales), diagrams, models and other media.
10. A description of the anticipated role and work tasks of individual team members, indicating special areas of focus and interest.
11. A work schedule for the period between the first week of the term and the final Phase II thesis presentations, held at the end of the third week of spring term.

There is not strict size requirement for the submission. Normally, each of the above 11 items are summarised on 2–4 pages each, and the final document size normally does not exceed 22–24 pages. Emphasis should be placed on a concise, clear summary of each of the required
Learning Outcomes
At the end of the Course students are expected to:

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

Assessment Criteria
Final marks for the course are based upon the final course submission. The Course submission requirements are listed above, regarding the expected contents of the thesis design proposal. Normally, all team members receive the same course mark, which is marked on the final course submission with written commentary. Individual student marks can be lowered in relation to team members in extreme cases. Assessment criteria for both participation and course submissions include:

1. demonstration of an understanding of the design objectives and goals for the Phase II thesis design project; stated in relation to previous phase I design results, course project brief, and an outline of proposed Phase II thesis design work
2. demonstration of clear, articulate, design objectives and goals stated in relation to specific design processes, techniques or systems that will be used on the project
3. demonstration of an ability to evaluate and critically assess specific design outcomes; especially, the design results of phase I design studio, workshop and seminar projects as well as their synthesis
4. display of clearly documented design thinking and reasoning in the form of a clear, realistic, work schedule and plan
5. demonstration of design documentation skills, in the form of the edited selection of previous results and new diagrams able to clearly and coherently explain the project goals and objectives.
6. demonstration of design creativity in the ways in which the Phase II thesis design project proposes to build upon phase I design results.

Course Submission Schedule
The Phase II Thesis Prep Document is due no later than Monday of week two, Term 1 (the 13th month of the 16th month programme). The two copies of the project document must be handed in to the graduate school coordinator in the graduate school office. The graduate school coordinator will stamp the time and date of the submission on the document. Late submissions will be subject to deduction per the Graduate School Regulations.

A selection of previous years’ thesis prep documents is kept on the MArch (A&U) programme shelf in the AA Library.
Course Introduction & Aim
The programme's thesis design studio courses extend the teaching and learning of architectural design and research undertaken during phase I, in the form of a comprehensive, detailed, final design project. The programme directors lead thesis design studio courses, which are taught by studio course tutors. The thesis design studio is the core of Phase II in the programme, and is taught in the Term 1 and Term 2 of the AA calendar, but the 13th through 16th months of the DRL programme calendar. The focus of the course is on the development of design knowledge and skills related to the completion of a thesis design project. The main outcome of the course is an integrated, complete, design project, which is developed in stages during the course.

The Thesis design project follows the general stages of development undertaken in the design studio courses of phase I, with the principal difference between phase I design studio projects and Phase II thesis design projects being the level of detail, overall design integration, and degree of project resolution required in the thesis design project. The thesis design project completed in the course is expected to be a more thorough, resolved, and mature design project that is able to build upon the skills and knowledge developed in design studio courses during phase I (see module syllabuses DST 201X, DST 301X).

Thesis Design Studio begins with completion of a thesis design preparation document (see module syllabus DSt 401X) submitted to course tutors for review and approval prior to work commencing on the project. See module syllabus DSt 401X for details of this stage of work.

Course Schedule & Readings
Stage 1 (Week 1, Term 1) Project Formation
Work begins in the form of a thesis design proposal prepared by the design team. This document serves as a bridge between Phase I and II in the programme; it summarises the key design results and final project of the phase I design studios, while also outlining a design brief for the Phase II thesis design project. The design team leads preparation of the thesis design proposal and the final document submitted to course tutors for assessment and approval prior to work commencing on the project. See module syllabus DSt 401X for details of this stage of work.
Stage 2 (Weeks 2-5, Term 1) Schematic Design
This stage of work involves a detailed design and development of one selective component or assembly that makes up the overall project. Design teams select a key part of the larger project and develop prototypes. Physical and digital models are used to visualise key organisational relationships between spaces, structures and parts. Initial alternatives for adjustments to key phase I design studio project results are tested and design decisions are made that will affect future lines of work. Phase I project documentation is reviewed and templates set up for digital and paper documentation of the work. Key project guidelines are reviewed and evaluated as the schematic design proposal emerges.

Stage 3 (Weeks 6-10, Term 1) Design Development
Schematic design decisions are focused on a definitive project design, which is developed through a combination of diagrams, information models, physical and digital models. Preliminary images are made showing views and animation sequences of the design as it develops. Design results are tested in relation to initial project guidelines and design objectives set out in the thesis preparation document. Project models and diagrams are made showing the relationship of the project to its urban surroundings, and alternative design strategies are tested in terms of the performance of the architectural project in relation to the project programme, proposed activities, usage, circulation and other criteria. The team develops an outline to direct work on the final project documentation and presentation by making decisions regarding final project materials, media and documents.

Stage 4 (Until Final Presentation, end of January)
This final stage of work emphasises a creative collaboration between team members regarding decision-making and design of the various final parts of the project design. Results from all previous stages of work are synthesised in a final design that is then fully documented in the form of project views, images, diagrams, drawings and models. Digital and physical formats are finalised for the final presentation of the project, including the making of a combination of large-format display panels, physical models, digital animations, movies, and a presentation interface. A final script is prepared for use during the final presentation of the project.

No essential or recommended readings during Stage 4: all work is focused on the completion and documentation of the final design project.

Course Requirements
All team members must attend all class sessions and work with project teammates on the joint final project due at the end of the course. All team members must visit chosen project site(s) for information gathering, participate in all design tutorials, interim and final presentations, and assist in making the joint final course submission, due at the end of the course.

All projects are to be pursued in the form of small, self-organised, teams of three or four people. Teams are required to meet with the course tutor at least twice a week during regularly scheduled studio times, in order to present progress on the project.

In addition to weekly tutorials with AADRL Staff all teams are required to present their work at interim and end-of-term presentations. These presentations typically consist of a thirty-minute summary of key project ideas, documents, models, images and developments, which serve as the basis for a discussion with the critics.

All teams are required to make a course submission, due no later than two weeks after the final presentation of the thesis project at the end of January.

Course Submissions
The printed format consists of an A5 hardbound thesis design project book, documenting key project images, graphics, models, diagrams, quantitative data and an accompanying text, not exceeding 3,000 words. All project images must be captioned, and a brief introductory text must explain the project clearly, in terms of all five of the following features of the work: 1) the design team’s design objectives, presented in relation to the project brief and workshop syllabuses; 2) research materials, including information gathered by the design team; 3) design techniques & tools used for the making of the project, including the evolution of the design project; 4) the contribution and role of individual team members within the team; i.e. who did what and how was the work of the team coordinated; and finally 5) a brief conclusion stating possible lines of development for the project. Project booklets should be prepared in appropriate page layout software applications, including Quark Express or Adobe InDesign.

The Course Submission must be made in two parts:

Part A: Hard Copies
One hardbound paper copy of the final project book: a high-quality, printed, colour version hard bound book. The cover page of the project booklet MUST include: the workshop name, project brief, course tutor name, design team names, and final project title selected by the design team. Final book length can vary according to the graphic design and layout of the document; typically, final Phase II thesis project books vary between 100-300 pages, bound.
Part B: Digital Copies
Additionally, all teams are required to submit a set of CDs containing: 1) copies of files for the Hard Copy course submission in two different formats, including BOTH the final .pdf file used to print the final hardcopy AND a folder containing the Adobe Indesign ‘Package’ files, which is a copy of the final document file plus linked image and font files; 2) a copy of the team’s final DirectorMX, FlashMX, Powerpoint or other multi-media file used for the final workshop presentation; and 3) a folder containing copies of all project models made in original application formats (such as 3dStudio or Maya).

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

Assessment Criteria
Final marks for the course are based upon final course submission. The Course submission requirements are listed above. Normally, all team members receive the same course mark, which is marked on the final course submission with written commentary. Individual student marks can be lowered in relation to team members in extreme cases. Assessment criteria for course submissions include:

1. demonstration of an understanding of key concepts and issues related to a project design as described by the student verbally in design tutorials and presentations, and summarised graphically in the project document prepared as the final course submission
2. demonstration of clear, articulate, design objectives, goals and processes; demonstrated in relation to design project analysis, potential alternatives, and interim stages of design development
3. demonstration of an ability to evaluate and critically assess specific design outcomes; in relation to initial design goals, comparative methods or techniques, or in relation to essential or recommended course readings
4. display of clearly documented design skills, thinking and reasoning, including the ability to work with team-mates in the development of the project
5. clear demonstration of an understanding of the design potentials and potential further application of the work, shown in the summary of the final workshop project
6. demonstration of design documentation skills, including clearly organised and structured design media including models; diagrams and other graphics; final project documents describing all aspects of the workshop project, prepared in a timely, well-organised manner with a clear and concise layout of graphic materials, a range of well-crafted physical models, and clear, concise, written summary.

Course Submission Schedule
Parts A. and B. of the course submission for design studio I DSt 402X, documenting all aspects of the design project made jointly with all team members, is required no later than two weeks following the final thesis design presentation. The submission deadline is intended to allow design teams time following the final presentation to compile the final project book.

Studio submissions must be made to the programme directors, via the Graduate School office, who record the date and time of the course submission.
The three-year research agenda of the studio, starting from January 2018, is motivated by the following observations regarding contemporary design, fabrication technologies and trends in contemporary living.

1. Digital design and fabrication technologies are maturing with significant progress being made by researchers in the fields of computational architectural design (Thomsen et al. 2015), computational geometry (Adriaenssens et al. 2016), structural design (Anon 2015), robotic manufacture (Reinhardt et al. 2016) etc.

2. Social, economic and political conditions in large, high-productivity cities such as Tokyo, London, New York, etc. have evolved (Jon Earle & Irene Pereyra, IKEA 2017) such that the market conditions are now suitable (Bardakci & Whitelock 2003) to engender a demand for masscustomised housing (Chong et al. 2009; Gann 1996).

These two observations together yield the premise of the research agenda: high-productivity cities can be a prime avenue for the application of the maturing domain of digital design and fabrication with the aim to develop a real-estate solution for contemporary living.

In other words, the promise made by seminal design research and polemic publications on mass-customisation and housing such as Negotiate my boundary (Steele 2006) and the generation of a vibrant community fabric of a residential community as seen in The Autopoiesis of Architecture: A New Framework for Architecture, Volume 1 (Schumacher 2002) can now indeed be realised.
FUTURE WORK
Urban and Architectural Semiology

Dst 401 B, DST 402 B
Patrik Schumacher
Assistant: Pierandrea Angius

The societal function of urban and architectural design is the innovative ordering of social processes. This function depends on the communicative capacity of the designed environment. The enhancement of this capacity poses the Semiological Project: to design the architectural project as a spatio-visual language.

The life process of society is a communication process that is ordered via rich typology of communicative situations. The built environment is thus society's physical memory; it functions as a graphic language or map that we all intuitively navigate to find relevant communication partners in pre-structured situations. The designed settings/spaces are themselves communications: they are communications that define, premise and prime the communicative interactions that are expected to take place within the respectively framed territory. Building is communicating.

The studio will start by researching various visual languages like traffic sign systems or graphic notational systems as source domains for semiological design. The design of an architectural semiological system implies the build-up of distinctions with spatial position, shape, morphology, materiality, colour, etc. as registers of semantic encoding. The basic unit of architectural communication is the single space, zone or territory as architectural sign defining a particular, distinct social situation.

The programme to be accommodated is best understood in terms of interaction patterns of the users/participants. These patterns of communicative interaction can be modelled via scripted agents that respond to the coded environmental clues. This implies that the meaning of architecture can enter the digital model (design medium) and thus becomes the object of cumulative design elaboration. The system of signification works if the agents consistently respond to the relevant positional and morphological clues so that the behaviours to be expected can be read off the articulated environmental configuration. As agents cross significant thresholds their behavioural rules are modulated. Territorial distinctions thus order and coordinate interaction patterns.
What once served to categorise the natural and the man-made worlds have been rendered obsolete. When distinctions of the real and artificial, human and non-human fail to offer insight, the challenge is how best can we design for a latent and unknown world. Within this uncertainty, new conceptual terrains emerge that raise questions of agency and intelligence. Hans Hollien’s provocative 1968 contribution in the journal Bau titled ‘Alles ist Architektur (Everything is Architecture)’ may offer some insight when he stated, ‘Man creates artificial conditions. This is architecture. Physically and psychically man repeats, transforms, expands his physical and psychical sphere.’

It is the speculative capacity to invent and construct alternative models that affords architecture its capacity to engage and make things accessible, proto-typing ideas as much as the host environments that may play witness to them. The desire is to see architecture as active, anticipatory and adaptive through continuous exchanges that are real-time and behaviour-based. Through this expanded field of understanding we can consider materiality as something that is not inert and finite but that is life-like, evolving and aware. If Hollien believed ‘All is Architecture’ today our studio would argue my mantra that, ‘All is Behavior.’

Architecture over the last fifty years has witnessed a revolution within communication, computation and technological progress. It is important to remind ourselves that architectural experimentation has always been an active participant in exploring, prototyping and speculating our relationships with these technologies. To address these challenges we must construct frameworks that allow us to co-construct solutions. Computation and design research affords us this capacity to create and communicate new solution spaces and understandings. Environmental conditioning, machine learning and collective building will challenge the next generation of designers to explore computation beyond form and geometry. Architecture will construct new territories for enquiry; programmable matter, emotive spaces, behavioural ecologies may signal just a few. The studio will approach architecture as an infrastructure and technology as culture. Towards a behavioural architecture…

Phase I project design work in the MArch (A&U) begins with a quick sequence of three inter-related, linked, design workshops that each last 3–4 weeks. During Term 1 these workshops provide a quick start to the year’s studio work, are designed to incrementally introduce a range of theoretical concepts, design approaches, and skills necessary for undertaking the larger Phase I design studio project, which starts at the beginning of term 2. These design workshops each focus on specialised area of design investigation, and are thematically consistent across the different individual tutor-led sections of the workshop.

Phase I Design Workshops

Phase I Design Workshops I & II: Material Behaviour
Shajay Bhoosan, Theodore Spyropoulos, Apostolos Despotidis, Mostafa El-Sayed
Term 1

Term 1 begins with two sets of three design workshop modules, emphasising computational and material prototyping as both an analytical methodology as well as the prime mode of design production and representation. Each 5-week module focuses on a specific set of methods and intended design output, introducing Phase I students to a broad range of concepts and techniques, with which to bring forward to further workshops and the year-long Phase I and Phase II thesis studio projects.

Phase I Design Workshop III: Design systems and processes
This one-week intensive workshop is imbedded within the five studios, targeting as an initial analytical project aiming to clarify the aims and ambitions of individual studio brief. The outline of this workshop will be given by the studio tutors in the beginning of the workshop.

Workshop Objectives
The Term 1 workshops emphasise short term, constrained, project brief and goals. Teams are not expected to complete detailed building proposals, which are the focus of design studio courses later in Phases I & II. During Term 1 these workshops seek to ‘tool up’ new and returning students, and their emphasis is on active, intensive, design experimentation. The collective results of Term 1 workshops are intended as a potential catalogue of potential project prototypes, design processes, concepts and techniques available for application and investigation as a part of studio projects later in the year; for this potential to be realised workshop projects must be systematically completed and documented in ways that productively summarise the objectives, features and techniques explored in their making.

While students are encouraged to explore different team arrangements and make cross-connections to presentations and readings in MArch (A&U) seminars, every effort should be made to promote project continuity across the different workshops or teams; individual while team members are allowed to move between teams in successive workshops, the projects these teams work on go forward.

Workshops 2019 - 2020 Course Syllabi
These describe the shared, recurring features of Phase I and II design workshops, explaining course procedures and general background aims, assessment criteria, etc. in detail. For 2019- 2020 these include:

- Phase I Design Workshop I DW 101
- Phase I Design Workshop II DW 102
- Phase I Design Workshop III DW 103
- Phase II Design Workshop DW 401

Project Briefs
Appended to each of these syllabi is a Project Brief. For 2019- 2020 these include:

- Phase I Workshop I Brief
- Phase I Workshop II Brief
- Phase I Workshop III Brief
- Phase II Design Workshop Brief

Syllabi & Briefs for workshops follow.
Course Requirements
All projects, except Phase I Workshop I, are to be pursued in the form of small, self-organised, teams of three to four people. Teams are required to meet with at least one Studio Tutor at least twice a week during regularly-scheduled studio times, in order to present progress on the project. All team members are required to be in the studio and working at least five full afternoons and evenings per week; many work more than this (the studio is open seven days a week). All groups will be given workshop introductions, in order to use the AA workshop facilities.

In addition to weekly tutorials with MArch (A&U) Staff all teams are required to present their work at an interim presentation in Week 3 & 4, and at a Workshop Jury and Presentation to AADRL Staff and invited outside critics at the end of the Workshop. These presentations typically consist of a twenty-minute summary of key project ideas, documents, models, images and developments, which serve as the basis for a discussion with the critics. All teams are additionally required to make a joint Course Submission due at the beginning of the next Term's work.

Course Submissions
A Course Submission documenting all aspects of the design research work made jointly with all team members is required in the first week of Term 2. These submissions consist of a combination of traditional printed project folios/booklets and digital documents & files included on CDs. The printed format consists of an A4 or smaller wire bound booklet presenting key project images, documents, models, diagrams and an accompanying text explaining the work. All images must be captioned, and a brief introductory text must explain the project clearly, in terms of; 1) overall aims of Workshops I; 2) research materials; 3) design techniques & tools; 4) the contribution and role of individual team members; and 5) a brief summary of the intended direction(s) of the next stage(s) of work.

The printed documents should be submitted in two copies; one high-quality, printed, colour version wire bound and the other an inexpensive b/w copy that will be returned following assessment with written comments and suggestions made by the Course Leader. Additionally, all teams are required to submit a set of CDs containing: 1) a copy of the .pdf and document files for the printed version; 2) the final term's Director, Flash or multi-media presentation; 3) copies of all project models in original 3Dstudio or Maya format.

Learning Outcomes
At the end of the Course students are expected to:

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

Assessment Criteria
Final marks for the course will be based upon the final Project Presentation and Course Submission, including their:

1. demonstration of the understanding of the key concepts and issues related to the Workshop Agenda leading to the formulation of the Workshop Proposal
2. demonstration of a clear formulation of the aims underlying the project developed in the workshop, including the ways in which these aims relate to the Workshop Brief
3. display of clearly documented design skills, thinking and reasoning, including the ability to work with team-mates in the development of the project
4. clear demonstration of the design potentials and further application worked through in the workshop assignment.
5. demonstration of design skills, including clearly organised and structured documents describing all aspects of the workshop, as layout of graphic material and a range of well-crafted physical models.

Schedule Final Submission
All submissions are due NO LATER than the first week of the following term for most studio submissions. Late submissions will be subject to deduction per the Graduate School Regulations. All submissions should be made to the Graduate School Office, which will record the submission.
Objective
This design and making workshop will explore the use of additive material processes within a time and performance oriented test-bed. Evolutionary and growth-like generative processes will be utilised to produce a series of skeletal constructs. Deposition techniques will be investigated physically in conjunction with generative digital technologies. This focused short-term research aims to explore the embedding of structural and fabrication constraints within geometry, and their resolution via rule-based patterns of material distribution as well as assembly sequences.

Schematic Task Outline
The three major tasks are related to

1. Making a material extruder including nominal electronics. Guidance and outline instructions will be provided. Students are expected to follow up with their own search for online resources.
2. Understanding robot control and developing Robot trajectories, along which material will be deposited
3. Understanding material parameters that make it extrudeable – liquid enough to extrude, dry enough not to collapse etc.

Iterate step 2 & 3 are based on observed behavior of the deposited material – collapse, drying time etc, until successful outcomes are reached.

Learning objectives
The participants are expected to develop a good understanding of the following:
1. Synergetic design: generative strategies, qualitative structural evaluation, incorporation of fabrication constraints
2. Construction of hypothesis and corresponding parameters
3. Rapid development of design ideas via structured catalogue of variation
4. Iterative refinement of geometry
This year the workshop will address the role of material constraints rather than computation, since these restrictions coupled with fabrication limitations tend to act as a boundary to realising ideas. Therefore it is increasingly important to actively work with these constraints and within the boundaries of their fabrication methods.

The workshop aims to introduce students to design methodologies and techniques that harness the computational potential inherent within material systems and fabrication processes. The workshop will enable students to explore this relationship primarily through a procedural workflow with the aim to better understand the generative capacity of these methods.

Material and Fabrication Experimentation

Working in teams, a series of rigorous material tests will allow groups to become acquainted with material behaviours and fabrication logic, this will be carried out alongside basic procedural modelling in the digital environment. Undertaken within a laboratory attitude of experimentation, set out geometries from digital files will be iteratively tested as the base geometry for physical model tests in order to observe associative relationships between these geometries and the subsequent fabricated object. Each of these tests will be recorded and inform the development and fabrication of the final design pieces.

These developmental models are to be experimental design exercises, where groups develop procedural processes capable of generating formal and material affects through deterministic and geometric principles that are the base variables of a given test. This way of working offers design outcomes only capable of being arrived at through the initial relationships that students define in their work. Teams will therefore be developing their own operative logic in which they progress their designs.

Multiple versions of the final pieces will also attempt to develop the designs throughout the workshop. All tests in the workshop are to result in designs of prototypes. As such they are pivotal to the development of your ideas and are therefore of equal importance to the final projects.

Students are to work in groups of 3-4 people for the duration of the workshop and develop the design projects through a methodology of digital and physical prototyping ultimately fabricating projects for the final presentation. All prototype models and set out information are to be tabled, documented and submitted as a bound folio document accompanied by a digital copy on CD.
This workshop seeks to explore new collaborative relations between humans and machines. Participants will train a neural network (LSTM) by computationally sketching graphic ideas. The network will learn from the participant drawings and do searches in a higher dimensional space to understand the associations between the parameters and the resultant drawings. The model should then be able to draw in a similar style to that of the participant when triggered by an initial set of parameters and propose its own variation based on the learning data set. The model predictions will then be translated into robotic motion parameters to drive the kinematics of a 6-axis industrial robotic arm.

Participants will gain skills in procedurally sketching methods, machine learning and robotic control and production.
Design Workshop II
DW 102B
Voxel Neighbourhoods
Apostolos Despotidis & Mostafa El-Sayed

Rule Based Interactions
The workshop will explore the generative potential of self-regulating neighbourhoods of voxels that interact through simple local rule sets and result in complex organisations across large populations. Experimenting through explicit models of interactions and observable patterns of agency the workshop will explore the capacity for these systems to evolve structural elements with the capacity to self-structure.

Computational/Material Coupling
The workshop will develop computational strategies that are generative while employing agent-based and dynamically correlated systems as a strategy to construct new orders of systemic models. Implementing digital evaluation methods, the workshop will look to construct a form of ‘natural’ selection. The aim is to develop a family of hybrid architectural structures that have the capacity to span, climb and organise a new sensibility of collective structuring. Output will create a family of physical structures through time-based generation.

The workshop will use the Processing environment as the primary digital tool for this exploration. Specifically, the intention is to incorporate computational concepts related to evaluating qualitative structuring behaviour within the design processes. The resultant structures will be tested by 3D printing to evaluate any weaknesses or lack of vertical connectivity in the structures.

Students are to work in groups of 3-4 people for the duration of the workshop and develop the design projects through a methodology of digital and physical prototyping ultimately fabricating projects for the final presentation. All prototype models and set out information are to be tabled, documented and submitted as a bound folio document accompanied by a digital copy on CD.
Design systems and processes
This one-week intensive workshop is imbedded within the five studios, targeting as an initial analytical project aiming to clarify the aims and ambitions of individual studio brief. The outline of this workshop will be given by the studio tutors in the beginning of the workshop.

Course Submissions
A Course Submission documenting all aspects of the design research work made jointly with all team members is required in the first week of Term 2. These submissions consist of a combination of traditional printed project folios/booklets and digital documents & files included on CDs. The printed format consists of an A4 or smaller wire bound booklet presenting key project images, documents, models, diagrams and an accompanying text explaining the work.

The printed documents should be submitted in two copies; one high-quality, printed, colour version wire bound and the other an inexpensive b/w copy that will be returned following assessment with written comments and suggestions made by the Course Leader. Additionally, all teams are required to submit a set of CDs containing: 1) a copy of the .pdf and document files for the printed version; 2) the final term's Director, Flash or multi-media presentation; 3) copies of all project models in original 3DStudio or Maya format.

Learning Outcomes
At the end of the Course students are expected to:

1. have acquired a range of technical skills in CATIA, including building parametric models, importing data structures to control these models, outputting for visualisation and communication to peers and tutors.
2. have been introduced to the design implications of the key concepts and intellectual frameworks underlying the AADRL's studio design approach concerning parametric design.
3. have been introduced to the MArch (A&U) team-based group design methodology, and the ways in which digital design allows for parallel experimentation and project development.
4. have gained experience in transferring dynamic information observed and recorded in physical models into controllable parametric models in CATIA.
5. have been encouraged to work through some of the conceptual imperatives of the AADRL Seminars with the strict demands of the software introduced in Workshop III.

Assessment Criteria
Final marks for the course will be based upon the final Project Presentation and Course Submission, including their:

1. demonstration of the understanding of the key concepts and issues related to the Workshop Agenda leading to several parametric models.
2. demonstration of a clear formulation of the aims underlying the project developed in the workshop, including the ways in which these aims relate to the Workshop Brief
3. display of clearly documented design skills, thinking and reasoning, including the ability to work with team-mates as well as independently in the development of the digital models
4. clear demonstration of the design potentials and further application worked through in the workshop assignment.
5. demonstration of design skills, including clearly organised and structured documents describing all aspects of the workshop.

Schedule Final Submission
All submissions are due NO LATER than Friday of Week One of Term 3. Late submissions will be subject to deduction per the Graduate School Regulations. All submissions should be made to the Graduate School Office, which will record the submission.
Phase II Thesis Design Workshop: Prototype

Term 1
Shajay Bhooshan, Patrik Schumacher, Theodore Spyropoulos

Term 1 work on Phase II thesis projects will begin with a five-week workshop addressing a detailed part of the structural and material system of each team’s thesis larger design proposal.

Objectives and Outcomes
The objective of the workshop is to describe in detail a range of spatial and structural configurations and states of the material system of team proposals, prototyping the design proposal at multiple scales, ranging from the site, to clusters of buildings, and detailed structural primitives. Material and structural prototypes are to be conceived and executed as refined design instruments rather than as sketch/mock-up models, or overly representational models.

Techniques: computation and materialisation
The workflow in each team should be two-way transfer between the further development of the parametric techniques developed in Phase I, and the expected output of physical models and prototypes, triggering feedback in a non-linear design method spanning computationally-generated design systems and contemporary fabrication techniques. Material models have the capacity to compute their statespace in relation to the forces that shape them, and teams will experiment with workflow between material computation and digital design methods. The workshop will emphasise the transfer of digital design information, models, and their code-based interfaces and scripts, in Maya/MEL, Rhino/VB, 3D Studio/MAXScript, Catia, etc., towards manufacturing and detail considerations in design, working with prototyping tools including CNC milling, laser cutting, 3d printing, vacuum forming, molding, casting, etc., working intensively for five weeks at the new AA Prototyping Lab in Bedford Square.

Scales of production
The methods and goals are to work on a series of evolutionary models, as well as final high quality prototype models at scales of 1:1000, 1:100, and detail scales of 1:1, 1:5, 1:20, with relations of smaller components to the aggregation of more larger and more complex wholes. This broad range of design work should be pursued in parallel within each team, assigning students to highly specific design problems with their associated techniques, discourses and scales of design output.

Parametric Performance Criteria
The series of prototypes should be tested for their capacity to manage the terms of performance criteria set up in each team’s Thesis Prep Document. The design systems and structures developed emphasising modelling techniques which seek local behaviours and principles that in turn act as feedback mechanisms for teams to test and develop their larger-scale design proposals. Design systems should also address the relation of the material/structural systems to parameters related to contextual conditions, programmes and activities, density/mass, movement and distribution, and other environmental, visual and ambient systems. The various prototypes, 3d models, animations, scripts, etc, are at all stages of this 5-week workshop to be accompanied by comprehensive descriptive drawings and diagrams, explicating a thesis concerning associative logics and their impact on accelerated urbanisation. Concept and Technical Definition

Design Stages
The workshop is organised as a sequence of 3 stages:

Stage 1_Term 1, Week 2_ Research Mission
Define which part of the ongoing Phase I Studio project is to be elaborated and prototyped in this workshop. The selected spatial, structural, material and tectonic systems should exemplify the thesis of the design research, specific to each project in the Phase II studio.

Stage 2_Weeks 2-3_Parametrics and Prototyping
The group deploys itself across both computational and material media, addressing all scales of production. Output: A series of preliminary digital and analogue models, scripts, drawings and diagrams.

Stage 3_Weeks 3-6_Prototype Production
This final stage of production in the workshop aims to deploy the parametric systems to a range of specific systems at three scales of design [1:1000, 1:100, detail].

Team-based Teaching and Learning: Assessment
Each DRL team will engage with their Design Studio tutors and technical tutors in regular tutorials, as well having regular working sessions with the entire Phase II studio each Thursday at 10am in Morwell St. studios. The workshop will conclude with a presentation on 10 November to DRL staff and a panel of visiting critics, serving as the first major interim review of DRL Phase II thesis projects.

Workshop Jury Presentation:
A presentation to DRL Staff and Invited critics will serve as a first major interim review for Phase II thesis projects accompanied by a submission and a critical assessment to go forward to the Candidacy Presentations January 2020. Any teams failing to complete the requirements of this workshop may be withheld from presenting their work in January 2020.

Weekly pin-up presentations and tutorials: Time/Date and Location TBC
Theoretical & Historical Background

While the pursuit of design projects is the central focus of the MArch (A&U)’s teaching and learning, the programme’s design seminars taught during terms 1 & 2 are crucial for both providing teams with necessary theoretical and historical background to the topics and agendas of the studio projects, while also allowing teams an opportunity to more systematically reflect upon their design objectives and results in relation to larger, contemporary, design discourses and the advances of other, related, disciplines.

These design workshops consist of weekly class sessions during which tutors present materials and direct discussions related to weekly readings and project analysis. Typically, each week’s session includes a presentation by one team, who then leads the discussion of a weekly reading. For these presentations students are encouraged to work in different groups from those undertaking the studio and workshop projects, so as to allow them to relate and negotiate their project ideas actively in relation to the design work of other teams in the programme.

There are three kinds of seminars offered in the MArch (A&U): Core seminars, on central topics/concepts, Designated seminars, on elective, secondary areas of interest, and optional Software seminars, which allow for the development of skills related to principal programs used in the MArch (A&U).

Course Structure

Seminars are typically focused on weekly readings, which introduce and elaborate upon key design concepts, processes and examples related to the course topic. All students in the course are required to attend all course sessions, complete weekly readings, and participate in group discussions.

Other AA Courses

Students are also encouraged to use seminars during terms 1 & 2 as an opportunity to explore the courses on offer in other parts of the AA, including the other graduate programmes and the History and Theory programme of the undergraduate school. If students are interested in completing one of these courses as one the elective seminar requirement during terms 1 or 2, students must notify MArch (A&U) staff and the graduate school coordinator, in addition to confirming with the course instructor that there is a place available in the course. All submissions made for these courses must meet the requirements and schedule of the MArch (A&U).

Seminars 2019-2020

These describe the shared, recurring features of Phase I seminars including course procedures, aims, assessment criteria, weekly readings and class sessions. For 2019-2020 seminars include:

Core

Core seminars address the central design agendas, working methods, and approaches of the MArch (A&U) studios.
One of the two required seminars during terms 1 & 2 must be taken from these seminars; the second can be any other of these or any other MArch (A&U) seminar, or a seminar from any other part of the AA School.

DS 101A Term 1
Spyropoulos
Design as Research I / II

DS 201A Term 2
Spyropoulos / Dillon  
Behaviour: Examining the Proto-Systemic

DS 201B Term 2
Bhooshan
Constructed Histories

Elective

Elective seminars are on specialised topics or areas of investigation closely related to studio agendas and topics and are more specialised than MArch (A&U) Core seminars.

DS 102A, 202A Term 1 & Term 2
Vougia / Platzgummer  
Synthesis: Writing & Project Documentation writing

DS 102B, Term 1
Mostafa El Sayed
Conceptualising Computing Seminar
Software
Design Software seminars are optional, skill-oriented seminars that introduce software applications and develop skills and techniques.

DSS 101A, Term 1
3D Studio Max v.2011 & Adobe CSS/Project Visualisation Techniques

DSS 101B, Term 1
Rhino + RhinoScript

DSS 101C, Term 1
Maya + Mel

DSS 101D, Term 1
Maya Modelling

DSS 101E, Term 1
Processing

DSS 101F, Term 1
Unity

DSS 101FG Term 1
Adobe Suite

DSS 201A Term 2
RhinoScript (python)

DSS 201B Term 2
Grasshopper & Visual Basic .NET

DSS 201C Term 2
Maya Advanced

DSS 201D, Term 2
Processing

DSS 201E, Term 2
After Effects
Course Introduction & Aim

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

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

Session 1: Introduction
Design as Research

Pursuing design as a form of research raises a series of questions regarding the ways in which design projects are conceptualised, developed, and documented. Treating the design project as a form of (shared, open) research emphasises particular forms of practise and communication between designers, their users, collaborators and clients, which can be considered today in terms of contemporary design systems, as well as in relation to historical precedents within modern architectural discourses. Today’s contemporary design research work emphasises rigorous, analytic, process-oriented forms of design experimentation; an approach that can be understood by comparison to the work of previous generations of modern architectural innovation, including the ‘single master’ models of early Le Corbusier or Mies; the mid-twentieth century emergence of hierarchical architectural offices and partnerships such as Josic, Candillis, Woods; modern examples of architectural offices as research settings, including Loewy, Otto and Prouve. These modern pioneers can be compared to the emergence, during the 1960s and 70s, of a generation of ‘critical’ neo-avant garde architects, such as the New York Five, Venturi, and OMA, who positioned their work in open opposition to the modern architectural profession. The principal features of today’s research-oriented forms of architectural design and innovation will be briefly outlined in this session, including issues of design collaboration, networks, processes, and media. These will be elaborated upon in subsequent sessions.

Essential Readings:


An excellent discussion of the ways in which ‘disorderly’ and chaotic laboratories serve as the site for scientists assembly of seemingly rational, orderly, scientific facts. The article provides a challenging description of design studios as a kind of laboratory.

Recommended readings:


A thorough introduction to questions related to the systematic and coherent pursuit of research: how to frame work around central questions; how to ask those questions intelligently; how to communicate your results in a clear and straightforward way. An essential book for anyone interested in rigorous, analytic, and coherent project documentation.

Kuhn’s statement comes from his landmark book The Structure of Scientific Revolutions, which outlines his influential idea of ‘paradigm shifts’ that occur within knowledge domains and disciplines.
Session 2: Processes
Machinic Design Operations

Today’s interest in new design processes can be related to key aspects of modern science and its discourses, including the guiding importance of technologies and questions of method in scientific enquiry. These can be discussed in relation to more general issues of technology as a key feature of modern life, and the unique conditions of today’s large, complex, technological systems. Recent discourses related to the social life of networking and other technologies provides a background for considering today’s robust design technologies, and their reliance on highly regulated, regularised, processes and procedures. A history of modern architecture is in part a record of successive generations of design processes; of the procedures used by architects and designers to constrain and shape design results. Early modern architectural innovation by Le Corbusier or Mies can be related directly to their discovery of what were at the time highly original, unique, design operations, which were derived from the technologies and social life of their time. During the past decade an interest in Machinic design operations has been linked to new design systems and technologies, including especially digital design and, increasingly, manufacturing processes. This generation of process-oriented design work can be related to the experiments in ‘automated’ design processes found in the early work of Eisenman and 1960s conceptual artists upon which he modelled his design procedures, as well as the recent proliferation of digital design procedures in architecture.

Essential Readings:

This influential early article by the architect relates his design processes to those of a young generation of conceptual artists in New York, including Sol Lewitt, Donald Judd, and others. Artists like Le witt and Judd treat the managerial role of the modern architect as a model for their own conceptual practice.

Lars Spuybroek, Machining Architecture (London, 2004), pp. 6-13
An essay introducing Spuybroek’s Machining Architecture compendium of recent NOX projects, outlining recent general developments in the use of digital media applied to the simulation of material processes and behaviours, and also explicating material calculation as a design methodology.


Recommended Readings:


Session 3: Fields
Nomadic Organisational Strategies

During the latter half of the twentieth century a variety of scientific and cultural disciplines turned their attentions to a notion of the ‘field’ as opposed to a traditional conception of an ‘object’. The emergence of field can be related to the modern invention of (infinitely) expanding grids; an evenly divided, uninterrupted, division of space. The notion of a grid has a long tradition within modern art, architecture and science. In the 1950s the models of Mies and others were transformed by young architects, including the ‘matt’ structures of Team X, Walter Netsch and his field theory projects at SOM, and others. In the 1960s Archizoom and Superstudio proposed infinite, uninterrupted, fields of space as a new kind of architectural project, and during the 70s new, largely horizontal, diagrams emerged. In the early 1990s OMA's seminal Yokohama proposal heralded a new decade of surface projects, around which today's notions of ‘field’ space are focused.

Essential readings:
A discussion of the shift from ‘object’ to ‘field’ in recent art, architectural, and scientific discourses.

Stan Allen, 'Field Conditions', Points + Lines: Diagrams and projects for the city (New York: 1999), pp. 92-103
A re-worked version of Allen's earlier essay, providing additional examples relating to a concept of 'field space'.


A discussion of architecture in terms of its performance, rather than its signification or associative meanings.

Recommended Readings:


Session 4: Time & Topology
Form as Dynamic Effect

The discourses and practices of architecture have often been based upon assumptions off highly stable, permanent architectural form. Within modernism an alternative project can be seen to have also emerged: one that seeks to grasp form as inherently dynamic, fluid changing feature of the material world. The writings of Henri Bergson, an early twentieth century philosopher of religion and science, challenged conventional theories of form, and their frequent disavowal of time as a critical feature of the world. This emphasis on a dynamic unstable idea of form has led to architectural design concerns for topological rather than geometric form. A topological approach to form emphasises not the shape of an object, but rather its transformational potential and the multiplicity of forces at play in the creation of form. Discourses related to animate form relate evolutionary, time-based, processes to final formal outcomes. Topological descriptions of form seek to relate the ways in which matter and information are fundamentally related. In the 1970s Rene Thom's Structural Stability text sought a new science of form, an application of catastrophe theory to questions of biological and natural form. More recently, topological approaches were embodied in the 'surface-based' architecture projects of the 80s and 90s and discourses centred on Deleuze's concept of the 'fold'.

Essential Readings:
Introduces Bergson's materialism and his unique way of interpreting the human perception of time.

Sanford Kwinter, 'Soft Systems', Culture Lab 1, Brian Boignon (ed.), (New York: 1996), pp. 207-228
A good discussion of the way in which complex and dynamic systems became objects of study across a variety of disciplines.

Greg Lynn, 'Animate Form', Animate Form (New York: 1999), pp. 8-43
A discussion of architectural design and form in relation to movement, animation, and growth.

Mark Burry, 'Between Surface and Substance', AD Surface Consciousness (John Wiley & Sons: 2003) pp. 8-20


Readed Readings:


Session 5: Matter & Algorithm

The materialist philosophy of Deleuze and Guattari emphasised that formation was a process that arose in time through interactions between matter, rather than as something ideal that was bestowed externally upon matter. Manuel De Landa, a contemporary theorist, has written a number of key texts that articulate how non-linear mathematics and the sciences of complexity support Deleuze and Guattari’s ideas on formation. The emphasis on ‘material becomings’ as a description of formation complements a recent shift within the architectural community to embrace both analogue and algorithmic techniques within design that enable design criteria to be incorporated within generative processes of formation. Cecil Balmond’s text discusses some relatively simple algorithmic design methods where procedures give rise to design outcomes qualitatively richer than the process, which describes them, and articulates the architectural and engineering freedoms this provides. In Scripting Cultures, Mark Burry discusses the cultural and ideological diversity within what is often assumed to be a homogeneous field of architectural code-writers that are utilising algorithmic methods.

Essential Readings


Recommended Readings


Session 6: Emergence
Self-organisation & Complexity as a Design Tool

Emergence is a term that has been coined in today's new sciences of complexity, derived from the study of complex systems, and has become an important concept in biology, mathematics and computer science. The concept refers to unexpected properties of those systems resulting from forms of interaction between the multiple elements, forces and components of those systems, which give rise to unexpected, often life-like, behaviours and features. With the inception of digital design software as the engine of architectural experimentation, the concepts and tools presented in this session have become embedded into contemporary design practices. These scientific discourses are not merely applied as design languages in project-based research, but rather are found in the everyday performativities of urbanism, where the concepts are witnessed as dynamic systems.

Essential Readings

A review of the ways in which all dynamic systems and collaborative models arise from the rule-based component parts, contributing to the coherence of complex entities.

A more general introduction to the concept of emergence, with a thorough explication of recent sciences of complexity across several disciplines.

A good introduction to the phenomena of complexity and emergence, by one of the field's pioneers. Very readable and non-technical.

A seminal 'early-adopting' cultural theory text calling for architecture to learn from the complexity sciences, with environmental, planetary, genetic and geometric instances explicated to share properties of self-organisation.

Recommended Readings

An important text outlining the current transformations in the discipline of Biology, to adopt the principle of order that govern all organisms to operate as dynamic, self-organising, evolutionary processes.

A discussion of how complex networks are able to evolve, and a discussion of Kaufmann's well-known NK Model, used to model these evolutionary properties.


Session 7: Networks
Connective Space

Networks underlie many of today's new sciences of complexity, as well as many features of modern life. The networks defining today's most advanced urban infrastructures share with the networks defining today's digital design and production processes many generalised features, which in turn can be seen to serve as the basis for grasping an evolutionary, emergent, theory of form. A definition of complex systems stresses various kinds of highly inter-connected, adaptive, forms of organisation whose key property is their ability to learn and adapt from their environment. This facility allows for emergence: an unexpected proliferation of larger global behaviours and interactions within a system whose properties cannot be reduced in a straightforward way to the simple rules underlying such systems. Conway's 1970s Game of Life offers a compelling paradigm for a new kind of system design; one whereby certain emergent behaviours within a system, and not just is elemental rules and components, are taken aboard as an essential part of a larger design project.

Essential Readings:

Discusses a contemporary notion of complexity in relation to art and science.

An excellent overview on the relationship between the global networks, urbanism, the internet and society.

Recommended Readings:

Discusses a contemporary notion of complexity in relation to art and science.

Eric Bonabeau, Marco Dorigo, Guy Theraulaz, Swarm Intelligence: From Natural to Artificial Systems (New York: 1999)
A technical discussion of swarm behaviour in biological systems.

Articulate discussion of the relationship between modern subjectivity and networks.


Session 8: Ambience
Sampling and Stochastic Techniques

Theorised and then performed by pioneering musicians like Steve Reich in the 1960s or Brian Eno in the 1970s, minimalist or ambient music provides an important example or case study in the birth of today’s highly immersive, adaptive, environments. Works by these musicians and others prefigure the last three decades of explosion in art, highly technological, forms of music and its experience. Modern music was transformed by Reich, Eno, Glass and others through their open experimentation with and assimilation of new digital technologies within the recording studio. These experiments, including their techniques of repetition and stochastic, phased, organisation offer a paradigm for the forms of experimentation needed today to cope with a proliferation of digital technologies within the architect’s studio. Minimalist experiments of the 1960s were in turn built upon a reaction to the highly formalised, mathematical, experiments of musicians like Xenakis, whose close collaboration with Le Corbusier offers a final example in this course of the ways in which adjacent disciplines and their discourses, like those of modern music, programming, and computing have already transformed modern architectural space into a condition far more mediated, interactive, and immersive than often acknowledged by its creators.

Essential Readings:


Brian Eno & Kevin Kelly, ‘Eno Philosophy’, Wired, May 1995, pp. 147-51, 204-9


Recommended Readings:


DS 201A Design Core Seminar Term 2
Theodore Spyropoulos, Ryan Dillon
Tuesdays 10:00-12:00

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

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

Session 1: Intro


Session 2: Architectural Machines

Essential Readings:


Recommended Readings:


Session 3: Gordon Pask and Cedric Price

Essential Readings


Recommended Readings


Session 4: John Frazer – Evolutionary Architectures

Essential Readings


Recommended Readings


Session 5: Grey Walter – Robotic Life

Essential Readings


Recommended Readings


Session 6: Le Ricolais vs Otto – Indestructible Ideas

Essential Readings


Recommended Readings


Session 7: R. Buckminster Fuller

Essential Readings

Buckminster Fuller, An Autobiographical Monologue/Scenario, St. Martins Press, New York, 1980 Note: This is on the Behaviour DRL bookshelf in the AA Library


Recommended Reading


Session 8: Dieste vs Today

Essential Readings:


Kwinter, Sanford, ‘The Computational Fallacy’, in AD Computational Design Thinking, Edited by Achim Menges and


Recommended Reading:

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

Students could elect to write their essay submission for this course on either technical state-of-the-art in computational geometry or trace discursive practices in design such as the invention of specific design features and tectonics as a consequence of the universe of possibilities afforded by such geometric abstractions of material and its limits.

Foundational reading list.
The reading list below is recommended as background reading. Session specific readings will be updated during the first term.

Introductory session
(Willmann et al. 2013) ; (Witt 2010) ; (DeLanda 2001) ; (Pye 1968)

Session 2 and 3
Design computation
(March 2010);(Bhooshan 2016b);(Kotnik 2010);
SubDivision surfaces
(Shepherd & Williams 2010); (Botsch et al. 2010);(Sakamoto 2008)
Topology optimization
(Dombrowsky & Søndergaard 2010);(Sasaki et al. 2007)

Session 3 and 4
Architecture, science, engineering
Reinforced Concrete Manufacturing
(Cusack 1987);(Cusack 1984)
Technology and bridges
Technology and shells and spatial structures
(Heyman 1966); (Booth 1997);(Billington & Garlock 2004);(Abel & Oliva 2010);
(Iori & Poretti 2013; Perugini & Andreani 2013);(Jones et al. 2010);(Ramage 2007)
Technology and towers
(Ellis 1986; Ellis & Tahiani 1987);(Bletter 1987);(Bonshek 1988)

Session 5 and 6

Additional Readings


Pye, D., 1968. The nature and art of workmanship, Cambridge UP.


Course Requirements
All students enrolled in the programme are required to attend all course sessions of the one Term 1 seminar and the two Term 2 seminars, undertake all required weekly readings included in the Course Reader, and attend tutorials with the course tutor in order to finalise course submission materials. Students are also required to present once a term per each seminar (three presentations in total for the duration of the programme) the material for a given week in a team presentation. All students are encouraged to take part in the seminar discussions. All students taking the course for credit are required to make a final Course Submission, due in final week of the term that the seminar take place.

Course Submissions
The format for the final Course Submission is an A4 paper not to exceed 3,000 words in length, which uses a combination of text, diagrams, images and other graphic materials describing a comprehensive analysis of a key concept, term, design tool, or project precedent explored during the course. Submissions are to be done individually, and it is expected that the text accompanying the analytic work will directly reference the course readings discussed in the weekly sessions.

Students are also encouraged to directly relate the materials examined in this submission to the kinds of projects and work developed in this year’s Design Workshops and the Studio project, so as to use the submission productively as a means to better ground the historical and theoretical interests of the programme’s design studio and workshop projects.

Submissions should focus on the selection of a single topic, built work, or other example, which can be used to illustrate the key ideas examined in the essay. The submission should analyse how the features, technologies or design processes of the project or selected example relate to contemporary design topics, discourses, and techniques.

The Course Submission must be made in two parts:

Part A: Hard Copies
Two paper copies of the final project document: one high-quality, printed, colour version wire bound; and the other an inexpensive b/w copy that will be returned following assessment with written comments and suggestions made by the course tutor. The cover page of the project booklet MUST include: the course name, course tutor name, student name (or names), and title. Submissions made by two or more student must include all student names and a final page that summarises the key roles of each team member.

Part B: Digital Copies
Additionally, all teams are required to submit a set of CDs containing: 1) copies of files for the Hard Copy course submission in two different formats, including BOTH the final .pdf file used to print the final hardcopy AND a folder containing the Quark ‘Collect for Output’ or Adobe Indesign ‘Package’ files, which is a copy of the final document file plus linked image and font files; 2) a copy of the team’s final DirectorMX, FlashMX, Powerpoint or other multi-media file used for the final workshop presentation; and 3) a folder containing copies of all project models made in original application formats (such as 3dStudio or Maya).

Learning Outcomes
At the end of the Course students are expected to:

1. have acquired knowledge about the concepts and skills related to contemporary architectural design and its discourses by study of selected writings and project publications
2. have acquired knowledge about architectural design as a form of research, including new and innovative forms of design as research, new and innovative design projects
3. have become familiar with important writings by leading theorists and practitioners from related disciplines whose operational terms and working results provide a useful framework for the programme’s design studios and workshops, and which relate to individual student design interests and objectives
4. have gained experience, knowledge and skills related to the understanding, interpretation and presentation of important projects; gained by undertaking detailed analyses of architectural or other projects
5. have acquired intellectual skills related to the evaluation and documentation of the concepts and ideas presented in course readings
6. have learned to situate personal design ideas and objectives, related to a students ongoing work in the programmes design studios and workshops, in relation to contemporary design discourses

Assessment Criteria
Final marks for the course are based upon final course submission, which are individual. The Course submission requirements are listed above. Assessment criteria for course submissions include:

1. demonstration of the understanding of the key concepts and ideas related to architectural design and research, included in course discussions and weekly course readings.
2. demonstration of a clear formulation of the aims underlying the thesis and agenda, as verbally explained in course presentations and contained in the course submission.
3. display of clearly documented analytic skills and reasoning, in course presentations, discussions, and course submission.
4. clear structure, organisation, and layout of the work in the course submission, including precise and clear writing, use of good
5. demonstration of good judgement in the selection of research materials, documentation, and development of clear project graphics, including diagrams, photos and other materials.

Course Submission Schedule
A individual Course Submission is required by the end of the final week of term that the seminar takes place (Term 1 for DS 101X, Term 2 for DS 201X). Students are provide with a 1-2 week writing period at the end of the term to focus on the paper prior to the end of term submission. The Course Submission must be made to the Graduate School Co-ordinator, in the Graduate School Office, who will stamp each submission and record the date of each submission. Late submissions will be subject to deduction per the Graduate School Regulations.
Supplemental Seminars

Synthesis: Seminar Essay Development
Writing & Research Documentation
DS 102A, 202A Terms 1 & 2

Alexandra Vougia (maternity leave), Klaus Platzgummer, Zaynab Dena Ziari
Terms 1 & 2

Introduction
The object of this seminar is to help students produce and present written work that is well-organised and clearly argued, and conforms to the standards of a graduate level design programme. It is important to recognise the role of writing and text-based research within contemporary architectural design. This seminar will help you to acquire strong skills in the communication and presentation of your design results and research; skills which are an expected outcome of the MArch (A&U) as well as important aspects of professional and academic life.

Schedule
Tuesday, 14:30-16:30

Tutorials
Sign-ups will be provided for individual tutorials on abstracts and submissions when relevant.

See Section Schedules & Information p. for writing guidelines.

Conceptualising Computing Seminar
DS 102B Design Elective Seminar Term 1

Mostafa El Sayed
Date/Location TBC

Course Introduction & Aim
This seminar will provide a foundation of the contemporary history of design computation, leading to the conceptualisation and deployment of computational logics and strategies relative to design objectives. The eight sessions of readings, group presentations and discussions will aim to conceptually and pragmatically develop and augment the design frameworks and objectives of each of the four design studios.

Sessions and Readings
Session 1: Analogue + Digital

Readings:

Session 2: Bodies, Memory, Space

Readings:

Session 3: Algorithms + Problem Solving

Readings:


**Session 4: Stigmergy**

Readings:

**Session 5: Language, Syntax**

Readings:


**Session 6: Science + The Future**

Readings:


**Session 7: Emergence + Complexity**

Readings:


**Session 8: Computing Science**

Readings:


Design Software Sessions
DSS 101X, 201X

A series of design software sessions are planned for Term 1 as a Supplementary Software Series, introducing the digital skill sets emphasised in the project-based design research modes in the AADRL. Although there is not a formal submission for these workshops, it is highly recommended that students attend all sessions, so as to familiarise oneself with the range of applications and tools that are used within the design studio. It is also advisable to select a limited range of applications and to become an expert in one or two of these, rather than only attaining a general understanding and operational proficiency in several applications. The AADRL will hold workshops on the following applications in Term 1 and Term 2. All sessions take place on the third floor of 16 Morwell Street studios.

DSS 101A, Term 1
3D Studio Max v.2011 & Adobe CS5/Project Visualisation Techniques
Torsten Broeder

DSS 101B, Term 1
Rhino + RhinoScript
Paul Jeffries

DSS 101C, Term 1
Maya + Mel
Mariana Custodio Dos Santos

DSS 101D, Term 1
Maya Modelling
Mariana Custodio Dos Santos

DSS 101E, Term 1
Processing
Jurij Licen

DSS 101F, Term 1
Unity
Konstantina Tsagkaratou

DSS 101FG Term 1
Adobe Suite
Octavian Mihai Gheorghiu

DSS 201A Term 2
RhinoScript (python)
Paul Jeffries

DSS 201B Term 2
Grasshopper & Visual Basic .NET
Torsten Broeder

DSS 201C Term 2
Maya Advanced
Mariana Custodio Dos Santos

DSS 201D, Term 2
Processing
Federico Borello

DSS 201E, Term 2
After Effects
Octavian Mihai Gheorghiu

Term 1, Term 2
AA DRL Supplementary Software Series 2019 - 2020
Third Floor, Morwell Street

Course Aims
The course consists of a weekly class sessions during which tutorials are offered for software applications. These optional seminars, which are not taken for credits and do not require course submissions, aim to develop skills associated with using the two dominant software
modelling applications used in the programmes design studio and workshop projects. As students become familiar with the application interfaces and commands, more complex techniques are introduced, including inverse kinematic modelling and scripting. The seminar courses are offered in the form of a two–term sequences of classes: DSS 101A is on 3D Studio Max v.2011 and Adobe CS5 / Project Visualisation Techniques, DSS 101B focuses on Rhino + RhinoScript, DSS 101C is on Maya, Mel scripting, and DSS 101D is on Openframeworks, DSS101E on Processing and DSS101F is an invited software seminar entitled “Plasticity & Network | Structural Intelligence in Natural System”. Each of the seminars follows a similar structure, moving from general overview/introduction, to kinematic modelling, dynamics, and scripting. In Spring term, software seminars continue with DSS 201A focusing on RhinoScript (python), DSS 201B on Grasshopper and Visual Basic .NET, DSS 201C on Maya within a design pipeline and finally DSS 201D is an invited software seminar entitled “Natural Systems | Algorithms in Nature”.

DSS 101A
3D Studio Max v.2011 & Adobe CS5/Project Visualisation Techniques
Term 1
Torsten Broeder

Course Aims
Rapid evolutions in digital technologies not only radically change the way architecture projects are conceived: they additionally trigger a transformation in the way projects are visualised throughout different design stages. This course focuses on both project presentation and project visualisation techniques by combining software tutorials with session in which student's project presentations are prepared and analysed on a case study basis.

During Term 1 eight software tutorial sessions will guide students through the tools and techniques Autodesk 3D Studio Max and Adobe offer. Next to the development of basic modelling and animation skills the focus of the course lies on the development of materials and mappings, the application of standard and advanced scene lighting, the use of cameras and rendering and post-rendering techniques, aiming to provide students sufficient know-how to develop graphic and photorealistic renderings. Additional sessions in the following terms will concentrate on directly implementing the techniques into studio project presentations.

Sessions on presentation strategies and techniques start with the analysis of both professional and academic presentations, followed by team-based assistance in setting up coherent project argumentation and the analysis and evaluation of student presentations and juries.

Course Sessions
Session 01. Introduction
– Exploring the Max interface
– Controlling and Configuring Viewports
– Customising the Max Interface and Setting Preferences
– Creating and editing primitive objects
– Selecting objects, setting object properties and using layers
– Transforming objects – translate, rotate and scale
– Cloning objects and creating object arrays
– Grouping and linking objects
– Modifiers and using the modifier stack

Session 02. Modelling
– Modelling basics and working with sub-objects
– Drawing and editing 2D Splines and Shapes
– Modelling with Polygons
– Deforming surfaces and using the Mesh Modifiers
– Modelling with Patches and NURBS
– Working with Compound Objects

Session 03-04. Importing Geometry, applying Materials and Maps
– Importing Geometry from Rhino (DSS 101B) and Maya (DSS 101C)
– Exploring the Material Editor / Material Slate
– Creating and applying simple materials
– Creating advanced multi-layer / composite materials
– Material Mappings
– Unwrapping UVs and Pelt Mapping
– Using Raytrace Materials
– Using Mental Ray Arch & Design Materials / Vray Materials
– Designing maps with Adobe Photoshop

Session 05. Cameras and Lighting
– Configuring cameras
– Using Lights and basic lighting techniques
– Using Sunlight and Daylight Systems
– Working with Advanced Lighting, Light Tracing and Radiosity
– Using Local and Global Advanced Lighting settings
– Using Mental Ray Sun & Sky/Vray sunlight & Environment

Session 06. Animation, Particle systems and space warps
– Understanding animation and keyframe basics
– Animating with Constraints and Controllers
– Working with Function Curves in the Track View
DSS 101 / 201 Term I / II Design Software Seminars

DSS 101B
Rhino + RhinoScript
Paul Jeffries
Term 1

Course Aims
This course provides an introduction to complex 3D modeling and algorithmic design methodologies. Rhinoceros3D is a powerful 3D Nurbs-based modeling program with incredible precision and customisability that is increasingly become industry standard in many design fields. Participants will gain a practical understanding of basic geometry and more complex topological surfaces. This will be augmented by the learning and application of RhinoScript, which allows not only the automation of rhino operations, but also the development of design methodologies that incorporate associative and generative processes. We will be focusing on scripting methods that harness computational processes for generative design.

Course Sessions
session 01 – introduction and interface
session 02 – surface modeling
session 03 – mesh modeling + stl preparation
session 04 – thinking topologically; complex surface modeling
session 05 – T-Spline modeling
session 06 – extracting drawings from models
session 07 – maxwell/vray interface to rhino
session 08 – RhinoScript: Introduction
session 09 – RhinoScript: recursive systems + vectors
session 10 – RhinoScript: substitution + L-systems

DSS 101C
Maya Modelling
Mariana Custodio Dos Santos
Term 1

Course Aims
This seminar is intended to introduce students to the Openframeworks/cinder C++ libraries with an emphasis on the possibilities of integrating them with Autodesk’s Maya API. The goal of the seminar is to allow students to gain an understanding of object-oriented programming in a similar way to that of the Processing environment, while exposing the students to greater geometric and behavioural possibilities through Maya API. This seminar will emphasise the learning of object-oriented languages such as C++ as well as basic knowledge of Maya API as well as the inner workings of features such as polygonal modelling within Maya. Some basic mathematics will be introduced in the form of vector maths (translation, rotation, etc).

Course Sessions
Session 01 - Introduction to Openframeworks/cinder as C++ libraries and their ability to operate within the Autodesk Maya framework, introduction to object oriented programming concepts
- Conceptual lecture
- Introduction to projects undertaken using openframeworks/ cinder
Session 02 - Hello world exercises within openframeworks to introduce c++ compiler and the compiling structure required - Introduction to the workings of maya and relating them back to the familiar structure of other scripting environments ie. draw & update loops
Session 03 - Introduction to the Array structure and vectors - Introduction to parametrization
Session 04 - Running an openframeworks script within Maya (behavior based)
Session 05 - Introduction to the basic native maya objects (MFloat, MPoint, MFn, etc.)
Session 06 - Running openframeworks/ cinder within Maya (geometry based)
Session 07 - Introduction to geometric possibilities and integration of openframeworks libraries with the native Maya API functionality.
Session 08 - Advanced geometry
Session 09 - Third party libraries
DSS 101D
Processing
Jurij Licen
Term 1

Course Aims
This seminar aims to introduce students to concepts of Object Oriented Methodology in order to address behaviour. The course will explore the description of 'objects' or entities that react to each other using the Java-based scripting language of Processing. (www.processing.org) The course aims to start from the basics of programming and develop more complex algorithms throughout the term. We will develop 'intelligent' behaviour as a series of simple rules of interaction. Throughout the term we will understand how well-known algorithms work, such as flocking, cellular automata, L-systems, etc. We will analyse if any of the logics of these algorithms can be useful for architectural design. To increase the power of Processing, we will learn how to embed external libraries. Towards the end of the term we will learn how to establish a dialogue between other software, like Rhino, Maya, Grasshopper & Arduino. A series of video tutorials will help students revisit the subjects after the completion of the course, using the class time to develop exercises and answer questions.

The tutorials can be found at: http://www.vimeo.com/16842534

Course Sessions
Session 01 – Introduction to Processing: overview of the term and capabilities of Processing
  – Introduction to OOP (object oriented programming)
  – Variable types, loops, and conditionals
  – Functions
Session 02 – Objects and classes – introduction to populations, arrays and array lists
Session 03 – Libraries – vector calculations
Session 04 – Simple vector class, primitive 'agent' – introduction to flocking
Session 05 – Neighbour calculations – cellular automata
Session 06 – Recursion: recursive aggregation – L-systems – fractals
Session 07 – Recursive subdivision – geometric transformations – custom parametric User Interface in Processing
Session 08 – Geometric Agency – self-organisation – geometry
Session 09 – Output; talking to Rhino, Maya, Grasshopper & Arduino

DSS 201A
Grasshopper & Visual Basic.NET
Torsten Broeder
Term 2

Course Aims
Software/Code: Grasshopper, Rhino.NET plug-ins
Topics: Use of Grasshopper and extension of capabilities with custom VB.NET components
Grasshopper is a new and rapidly developing addition to Rhino that is rapidy gaining in popularity among architecture practices. Grasshopper enables the creation of parametric models through the use of explicit history in a visual programming environment. This suggests a new approach to modelling where process takes precedence over fixed geometry. The course provides an introduction to this new tool aiming to demonstrate how to use it to its fullest. The second half of the course will cover Visual Basic.NET - a programming language related to RhinoScript but much more powerful and which is compatible with both Grasshopper and Rhino itself, allowing us to move beyond the limitations of these programs by constructing our own grasshopper components and rhino plug-ins. By creating our own software solutions in this way we open up the infinite potential of these programs and the freedom to discover new design methodologies.

Course Sessions
session 01 – Grasshopper: Introduction
session 02 – Grasshopper: Generative modeling
session 03 – VB.NET: Introduction
session 04 – VB.NET: Object Oriented Programming
session 05 – VB.NET with Grasshopper: Transitional patterning
session 06 – VB.NET with Grasshopper: Locus-based surfaces
session 07 – Rhino.NET Plug-in development #1
session 08 – Rhino.NET Plug-in development #2
Course Aims
Architectural design pipelines are quickly becoming varied and complex. They span conceptual studies through to detail design, along complex trajectories. This term will focus on inter-operability with tutorials and examples of connections between Maya, openFrame-Works (OF), Processing and Catia - architecture, New Media and fabrication. Thus, the course will be organised as two separate but related sets: Maya and New Media, Maya and Fabrication.

The tutorials and exercises will be specialised, with the aim of providing the programming and conceptual framework for more advanced digital methods. The attempt will be to introduce the features of C++, its use within developing custom applications in OF and plug-ins for Maya, Catia and other host programs.

The two sets of tutorials will center around the following topics:
- Physically based simulations: Initiation to a home-brew solver.
- Networking: Communicating between Maya and p5, Maya and OF.
- Inter-op: a two-way work flow between Maya and Catia.

Course Sessions
Session 01 - Introduction to Processing: overview of the term and capabilities of Processing and OOP (Object Oriented Programming).
Session 02 - Variable types, loops, conditionals and functions.
Session 03 - Vectors - Introduction to vectors and vector math. Using external libraries
Session 04 - Objects and classes. Building simple vector class, primitive "agent".
Session 05 - Introduction of arrays and array lists and its usage in classes.
Session 06 - Introduction to flocking behaviors. Building an agent system.
Session 07 - User Interface - keyboard, mouse and slider control.
Session 08 - Creating movies from processing. Interfacing with After Effects.
Course Submission Guidelines

Please refer to study module syllabuses and project briefs for individual course submission requirements. This section of the course guide is intended to provide a general set of guidelines for preparation of design seminar essays and design studio/workshop project booklets.

For a more in-depth review of writing guidelines, refer to the Synthesis guide on the following pages.

Introduction

The purpose of these notes is to help students to produce and present written work which is well organised, clearly argued, and conforms to the standards of a graduate level design programme. These guidelines will help you to acquire good skills in the communication and presentation of your design results and research; learned skills which are an expected outcome of the MArch (A&U) as well as important aspects of professional and academic life.

Preparation of required course submissions are due either at the end of term that the course takes place or at the end of Week One of the following term.

Schedule

It is essential that design teams plan and manage the preparation of course submissions as an integral part of the development of design projects and class presentations. In this manner way the submission is a natural progression of the design work itself, and also allows for the submission to go through a series of draft versions and the gradual building up of materials and explanations of the design work. In this way the initial stages of preparation of course submissions help structure ideas and materials for project presentations made throughout the academic term.

Abstracts

Preparation of required design seminar course begins with the submission of an abstract, which is a one–page summary of the overall essay or document content, thesis, argument, and a preliminary outline of reference materials. These abstracts are due no later than the end of week three of the term, and are read and commented upon by course tutors as a way to assist in the preparation of the course submission. Submission abstracts are not formally assessed but provide a useful means for formalising initial essay topics, ideas, and graphic design components of the submission.

Below is a sample abstract from a scholarly journal, Economy and Society (vol. 27, No. 2 & 3). The essay is titled ‘Georges Canguilhem on the question of the individual’ and is written by Dominque Lecourt. It is an analysis of Canguilhem’s work in regards to a contemporary issue within sociology and political theory. Note how the abstract is separated into individual sections: first to state its goal as an analysis of a problem in the work of one thinker; second, how it introduces the basic framework that is to be analysed; thirdly, how it lists the three areas in relation to which this analysis occurs; finally, the abstract has to state the essay’s conclusions (a more speculative essay might place the essay conclusions, in the form of thesis questions, at the beginning of the abstract.

This paper addresses the ways in which the problem of biological individuality is posed in the work of George Canguilhem. In his early work, Canguilhem argued that biology must regard individuality as an absolute centre, but also argued that individuality was no more than a term within a relationship whose other term was environment. The paper considers the ways in which this tension is worked out in Canguilhem’s later writings, in relation to the theory of natural selection, in the theses on the nature of norms and health for living individuals, and in relation to molecular biology and the idea of the code. The paper concludes by arguing for the centrality of philosophy to inventive scientific thought.

This is an example of a good, clear, 117 word summary of an essay. Your abstract paragraph should never be substantially longer than this example; brevity is a key to clarity. Students in all courses requiring course submissions should begin preliminary drafts of abstracts describing either their essay in design seminars or summarising their design projects in the programme’s design studio and workshop courses. An ability to effectively summarise a design project’s overall design goals, methods and results, situated in relation to both project briefs and other contemporary design practises and discourses, is a vital form of knowledge and skill sought in the MArch (A&U).

It is essential that students grasp the need to repeatedly draft and gradually refine and improve their abstracts; ideally abstracts evolve alongside design projects and research. The one–page abstract due in all courses at the end of week eight in the term should also include a separate paragraphs that summarise project titles, team member names, tasks and responsibilities, and other key features of the work, including important reference materials used in research and writing.

A useful outline for preparing your abstract would include the following items:

1. **Introduction**: Briefly introduce the topic, state the purpose of the research, and outline the main objectives and methodology.
2. **Background**: Provide a brief overview of the relevant literature and the context in which your study fits.
3. **Methodology**: Describe the methods used in the study, including data collection and analysis techniques.
4. **Results**: Present the findings of the study, including any tables, graphs, or figures that support your conclusions.
5. **Discussion**: Interpret the results, discuss their implications, and compare them with previous research.
6. **Conclusion**: Summarize the main findings and their significance, and suggest areas for future research.

**Notes**:

- Be concise and to the point.
- Avoid jargon and technical terms.
- Use clear and straightforward language.
- Make sure your abstract is free of errors and well-structured.
Writing

Essays and course project documentation are an opportunity for students to prepare clear explanations of what are at times complex, highly technical, design processes and methods. Every effort should be made to explain and articulate this work in an understandable way. Your text must be clear and concise for both the required essay and the project documentation. The MArch (A&U) is a studio–based design programme, not a writing course. Accordingly, the focus of all our efforts is on the making of innovative designs, and a critical and innovative evaluation of these design projects in relation to contemporary design practices and discourses. The manageable length of the course submission essays are intended to keep the focus on the undertaking of analyses and designing. Good writing and grammar are essential for making project documents and essays readable, coherent, and interesting. Slang and informal writing is not appropriate, nor is the wholesale use of jargon or terms borrowed from ‘critical theory’. The programme focuses on the making of coherent, rigorous and analytic design proposals clearly presented and discussed in a straightforward and easy to follow way.

After initial preparation of an abstract, which will be read and commented upon by your course tutor, students should develop the submission by means of outlines that clearly structure and organise the work. In a 3,000 word essay, the writing should be logically divided into a maximum of four or five main sections which are connected an understandable way. These clear and concise sections are to begin with an initial introductory section, contain a main body of text, and end with a conclusion section.

Project Documentation

Project documentation is a critical part of the overall programme of studies in the MArch (A&U). In design studio and workshop courses design teams prepare a course submission that consists of a detailed documentation of project design results, research and design processes, which are explained and critically evaluated in the project document.

These project documents should be prepared as stand–alone records of a design project, and are prepared in a format that includes written text, pictures, and captions clearly explaining all aspects of the work. Normally, these documents are prepared in page layout software applications, including QuarkExpress and Adobe InDesign. These applications are designed to facilitate the production of documents that are required for the course.

Module syllabuses include descriptions of specific requirements for the documenting of design projects. In design studio and design workshop courses theses documents typically consist of a twenty–page or less wire bound booklet that includes all key project images and design materials made in the preparation of the design project. Accompanying texts introduce the project, its main aims and design processes and media. An additional and important part of these documents indicate the role of individual team members within the design work, clarifying the range of design tasks undertaken during the development of the project.

These documents should end with a conclusion that critically evaluates the design project and its outcomes; in relation to original project briefs, assumptions, objectives or other criteria.

Format

A4 or smaller formats are acceptable, with sufficient font sizes, margins and line spaces to ensure that the document is readable and legible. Images and diagrams should not be too small, and all images must have accompanying captions that explain their content and relevance.

The cover page should prominently display the title of the programme, study module title, tutor name, and student name(s). For longer design studio and thesis design studio submissions, a table of contents should follow the front title page. A short introduction should follow this, which provides a brief overall summary of the essay or document. In the main body of the document graphic methods for emphasising section headers, subheadings or tables should be used to make the document easier to read and follow.

Complex images or diagrams need plenty of space around them, and they should be accompanied by explanations that make clear all aspects of the graphics, including (when relevant) details of how they were generated.

A clear acetate front cover should be included to protect the work. Design workshop and studio documents must be wire bound (not plastic comb; wire) and thesis design studio books must be hardbound.

Quoting

It is essential that you credit outside sources and references you use in your essays or project documents. The thinking and writing in your submissions must be yours and original; if you are using the writing of someone else you must cite its sources. Do this with footnotes and bibliographic references listed at the end of the essay.
If a quoted passage of text is shorter than three lines, then it should be indicated by double quote marks ("and"). If your quote is longer than three lines, put the quote in a separate, indented, paragraph without quotation marks.

**Footnotes**

Use standard methods of numbering and writing footnotes in essays, with numbers at the end of a phrase or sentence. Keep the footnote at the bottom of the page or the end of the essay. There are several standard footnote formats; the important point is to be consistent throughout the document or text. The following shows two different examples of how to write a footnote; either is acceptable. Pay attention to indentation:

**Footnote examples:**

Example 1: Footnote citing a specific text and page/s in your essay.

Example 2: Bibliographic Reference cited as general text reference at the end of your essay:


**Reference Manuals**

All students should buy and use one of the well–known reference books used for the preparation of academic papers or dissertations. These include:

- The Chicago Manual of Style, 14th Edition
- The MLA Handbook
- Another small and useful U.K. guide is

MHRA Style Handbook: Notes for Editors, and Writers of Theses

These reference books present slightly different formatting procedures for the preparation of academic or scholarly publications; regardless of which one you choose it is essential that you use it to consistently format and structure your paper.

Notes by C. Hight & B. Steele 10.02
Outline of Guidelines:

1. Abstracts
2. Preparing to Write
3. Synthesis Writing
4. Synthesis Essay
5. Research Techniques
6. Re-presentation of the Material
7. Image Use
8. Referencing
9. Referencing Manuals
10. Referencing Styles
11. Quoting Material
12. Research Resources

Abstracts

The abstract is a concise paragraph explaining how you intend to develop your chosen topic. Roughly 100-200 words: state your argument, an approach to your research and potential solution / desired outcome. Developing graphic and image based versions of this abstract format is encouraged.

Below is an outline for an abstract with an example:

1. Title of essay:
   “Enfolding the Architectural and Infomatic Model of the Organism”
2. Frame the problem:
   Describe what the issue is, how it is situated, etc. “Folding is a conceptual tool developed by Gilles Deleuze in his text, The Fold: Leibniz and the Baroque, and was introduced into architecture by Jeff Kipnis. Since then, it has been a central conceptual trope in architectural design concerned with the production of effects rather than critical analysis.”
3. Hypothesis:
   State the problem to be addressed in the paper – this is also called a thesis statement. “This paper examines the concept of folding in architectural discourse over the past ten years. The paper argues that the brief history of folding offers neither a style nor a single design practice, but a general framework for action within a crisis of architecture’s traditional models.”
4. Procedure:
   Describe the materials you are going to employ to engage this problem. “To understand the importance of folding, this paper examines folding’s migration as a concept from textual trope, through biological model to informational effect. It does this by analysing a set of projects and their accompanying texts.”
5. List materials/outline:
   Describe the procedure, steps and series of issues with which you will develop this problem. “First it examines Peter Eisenman’s Aronoff Center. Second Greg Lynn’s Long Island House will be analysed to understand how scientific and biological models are enfolded with the philosophical problem of folding. Thirdly, recent programmatic/informational folding will be investigated via the recent MDRDV project Villa VPRO.”
6. Conclusion:
   State the conclusion you wish to draw, the question you hope to conclude with or the question your analysis has raised. Sometimes the thesis emerges here in an analytical essay. “From these analyses, the use of architectural folding is problematised by revealing a conflation between an informational model of the organism that it now derives from and the very non-transparent condition of that information from which folding gains it’s effects. Rather than be understood as opposed to the fragmented architectures characterising deconstruction, the folded bodies of architecture must be seen as a discontinuity (a fold itself) within the epistemological vector of deconstruction linked to problems of mediation and information in the late 20th century.”

Preparing to Write:

Regardless of whether you are synthesising information from text sources, lab data, diagrammatic analysis, or design research, your preparation for the synthesis will probably involve comparison. It should involve the formulation of an opinion as you work towards organisation.

You need to formulate your own purpose, and develop your own perspectives and interpretations.

A systematic preliminary comparison will help. Begin by summarising briefly the points, themes, or traits that the texts / projects / cities / composites have in common. Explore different ways to organise the information depending on what you find or what you want to demonstrate. As you would approach a design charette with series of quick sketch solutions, make several different outlines or plans before you decide which to use. As the most important aspect of a synthesis is its organisation, you can’t spend too long on this aspect of your paper.

Synthesis Writing

Synthesis is related to but not the same as classification, division, or comparison and contrast. Instead of attending to categories or finding similarities and differences, synthesising sources is a matter of pulling them together harmoniously. Synthesis searches for links between materials for the purpose of constructing a thesis or theory.
If your abstract poses this type of question "what information must we know in order to understand this topic, and why?" The answer will form the thesis of the resulting paper. It may not, however, be a particularly controversial thesis. There may be some debate about what background information is required, but in most cases the papers will still seem more like a report or survey than an argument.

The differences between an analytic, argument driven paper and a survey, are most visible in the topic sentences to each paragraph. Instead of simply introducing the material for the paragraph to follow, they also link back to the thesis and assert that this information is essential to your constructed argument.

Writing the Synthesis Essay:
The essay should be organised so that others can understand the sources and evaluate your comprehension of them and their presentation of specific data, themes, etc. The following format works well:

1. The Introduction (usually one paragraph) -- contains a one-sentence statement that sums up the focus of your synthesis. Also introduces the texts, projects, applications, images.

2. The body of a synthesis essay -- this should be organised by theme, point, similarity, or aspect of the topic. Your organisation will be determined by the assignment or by the patterns you see in the material you are synthesising. The organisation is the most important part of a synthesis; try out more than one format.

3. Conclusion -- when you finish your paper, write a conclusion reminding readers of the most significant themes you have found and the ways they connect to the overall topic. Tie up loose ends. You may also want to suggest further research or comment on things that it was not possible for you to discuss in the paper. If you are writing a background or argument-driven synthesis, it may be appropriate for you to offer an interpretation of the material or take a position / thesis.

Research Techniques
Across the Archive - An archive is the tangible organisation of knowledge as artifact. It is not bound by a linear conception of time; it does not present a transparent factual recounting, nor affirm teleology of historical progress. Instead, research practice can be a continual working over of documented information for present applications. Researching can be understood as the process of reassessing habitual thought and practice to develop potentialities in our work and learned behavior.

Active research diagrams and connects texts, practices and artifact into a singular heterogeneous, malleable yet stratified surface. The practice of research may intensify the interconnections of concepts not simply representing a known truth but intervening in these flows and causing you to question the information you've collected.

Start in the middle: Map the pre-existing formations of your topic. When researching, you are a transceiver of information and ideas. If you are not sure how to begin, simply start anywhere related to your topic -- with a keyword search -- examining all the revealed connections. Start again with your results -- research is an iterative process. Never fear mistakes; develop the ability to recognise when you are at a "dead end."

References and bibliographies are extremely useful resources. Refer to these in texts you are referencing — they lead to other resources and help you to quickly sketch out the range of issues and materials associated with your subject. Look for holes or gaps within this research and see if you can't provide further information to help support or refute the argument.

Explore graphic as well as textual information, examining photo credits and the framing of images as one would a bibliography. Approach searches and archives creatively and shrewdly. Internet databases have revolutionised / maximised the process of research. However, most computer searches are algorithmic (rigidly programmed) while you want to approach archives in a heuristic (learning by experimenting) manner.

Do not expect on-line searches to yield all, or sometimes any, useful information. Each database is organised with certain biases and quirks. After you gain familiarity with each system, you can exploit these tendencies more effectively.

If you have access to a library's book stacks, examine the texts that surround the one(s) you isolated in your online searches. This helps to build an understanding of how each library is organised physically — often differing from how things are offered online. Often, a researcher finds the crucial text or object through such "random" (actually informed intuition) physical searches.

Follow the material, not subjective opinions. Recognise links between the line of development of your ideas and the topics you are researching. At the same time, you must remain in control of the trajectory of your work, even when you come across unforeseen developments. The more you research the more apt you become at recognising new branches. Keep a record of all your bibliographic forays. Even the ones that are initially useless may find their way into your research later.

Re-presenting the Material
Make things as simple as possible. If the paper's task is to convey concepts of complexity in science, it does not necessarily mean that the representation of the text must be complex or illustrate complexity. The images and the text should have a clear relationship to each other. Graphics and data should further develop the argument. Use cap-
Appendix B

Writing Guidelines

The more experimental the layout/presentation, the more critical it becomes to footnote and reference correctly and clearly. Even if you are manipulating certain conventions, the full bibliographic information should be present and it should be clearly referenced and traceable in the text.

Develop concepts and communicate to a chosen audience. Keep in mind the potential audience for your work. This does not mean simply a tutor who will grade your paper, but the abstract grouping of specialties, disciplines and discourses.

If you are using a term that is not commonly understood, make sure you define how you are using it in someway, if only by example. Avoid using terms you can’t explain. Avoid using terms as jargon and avoid producing new jargon. An outside architectural critic may understand a term used in the studio a different way; therefore it is critical to define how you are using the term.

Your writing style does not need to be linear or narrative, but it does need to communicate clearly. It’s difficult to be too basic in this regard. It’s better to spend more time developing the argument if this means it will be better understood, but you must also be concise.

Do not use other’s work simply to authorise your project/argument. Utilising the writing and work of others is a subtle skill, and there is a difference between a soundbite and quoting. Quoting seeks to engage another writer’s argument within the flow of your own, using it as a point of analysis, criticism, or to support your thesis. A quote can be used to demonstrate what somebody thought or to define a practice at a give time; it cannot simply prove your point without a framing analysis.

In traditional expository, images have been used as a little more than illustrations to a predominantly written narrative. They clarify, provide examples or evidence or even explain. One of the skills architects/designers bring to research is the ability to work with visual materials in a more experimental and critical manner. And while we are accustomed to analysing building plans and sections, we are less familiar with analysing photographic and graphic information. One can extract a great deal of information from these items, as well as the spatial and formal characteristics of the layout and material. What relationships and forces span across the picture and the typography? What space opens between image and text – in which you can develop new concepts?

Image Use
Situate the image- Locate images and diagrams within a known constellation of knowledge as one does a text. Keep track of where the images come from and their bibliographic information (credits, dates, etc). These will also save time if you need to refer back to an image at a later date or need to provide a credit for it.

If you are studying a building or an object, examine what other things have been typically related/shown next to it and begin questioning these implicit classifications and assumptions.

Map the use of same or similar images in different texts, its changing use over time (as with different applications for the same text). Of course, some images are already over-determined by theoretical or popular discourse—become aware of these associative histories within the image.

Develop a stockpile of images that concern your ideas and research topic. Organise and reorganise these images, shuffling them to reveal new categories.

Image as informant- Think of images as a somewhat self-sufficient line of development from the text. Accordingly, try to utilise images as a lineage of argument that does not depend on a textual explanation. The question is not what the image means, but how it operates. Sometimes the way material is designed can reveal a great deal. Examine cropping, sizing, and placement of images to understand what weight or rhetorical effect they play in the argument. Even the use of fonts can provide some information by modulating the velocity and intensity of the text, or altering the balance between text and image.

Referencing
Referencing may seem constraining or overly detailed. Keep in mind, these systems exist to facilitate research. Once you learn a system, it becomes automatic and enhances your research and writing. Referencing is a type of hypertext link. Instead of connecting you to another website, references indicate other sites of knowledge.

Bibliographies are a way to categorise information, enabling you to work with sources in more creative ways. A bibliography places a work within a larger constellation of works, showing the corpus of knowledge from which it is drawn and the position it takes in regard to previous arguments. A footnote can lead to unexpected material, indicating new possibilities or holes in the argument.

Notes document as well as develop connections and arguments not central to the main arguments of the paper. In some styles of writing, footnotes carry the burden of academic “proof” and argument, which allows the main text to become more fluid.

Inconsistent referencing is unacceptable. Casual citation displays a general lack of rigour; it becomes unclear how you have utilised the materials of the course and how you understand and interpret them; your arguments are less clear, and it is difficult to discern what you are trying to say versus the opinions the other authors are referencing. In extreme cases, casual referencing practices veer into plagiarism. Do not plagiarise. You must cite the words of another author. This is not confined to verbatim transposition; excessive paraphrasing is also plagiarism. Cite anything you did not generate that is not of “general knowledge.” Cite images. Cite music. Cite recognisable code…
Every academic professional journal requires standard referencing. If you are interested in writing or publishing your design work, learn the conventions as soon as possible. Transforming or developing variations of a standard referencing style is often effective as long as you understand exactly what is being altered. Referencing must be treated in a precise and critical manner.

For "creative referencing" that falls within acceptable academic parameters see Rosalind Krauss' annotated referencing style in The Optical Unconscious.

Referencing Manuals
The following are perhaps the two most complete reference books used for referencing and for the preparation of manuscripts. Most academic journals use one of these as their model. These compendiums have an example for every type of reference imaginable including referencing samples for electronic sites and databases. They are available in most libraries and bookstores. Alternately, the notes, used by a major publisher may clarify more common citations. Be careful which publisher you use and utilise the same one throughout (MIT Press is a good example).

The Chicago Manual of Style, 15th edition
http://www.press.uchicago.edu/Misc/Chicago/cmosfaq/cmosfaq.html

The MLA Handbook, 6th edition
Google "MLA handbook" for user-friendly university MLA style guide references

Referencing Styles
There are two major referencing styles. The first is the humanities style which remains the standard for the humanities and arts publications. The second is the MLA style.

The Humanities Style- This form of referencing puts the bibliographic information into a footnote or endnote called out in the text by corresponding superscript number. Short articles may be accompanied by a bibliography, although this is unnecessary if every source is cited in a reference. Longer works almost always have a bibliography. Please note, according to this style, references within a note or within the bibliography have slightly different forms. The humanities style is more complicated than the MLA style, but more flexible. It's also the most common within architecture. However, you will probably encounter the author-date system (MLA style) during your research. You may use either one, and you'll find variations within these styles. Whatever style you choose, use it consistently and without deviation within the piece.

Referencing within a text-
As Paul Virilio devastatingly argues, the technologies of photographic reproduction and military force are inseparable. Since Marey conjoined the machine gun and camera for the dismantling of dynamic action, the assemblage film, light, and surveillance "illuminated a future where observation and destruction would develop at the same pace."57

Referencing with a footnote- at the bottom of the page for a footnote or at the end of the text as with endnotes, you have the following citation:

The reference marker occurs within the body of the text, usually as a superscript number. Full footnotes appear at the bottom of the page on which the reference occurs, endnotes at the end of a chapter or at the end of an entire work. Both footnotes and endnotes refer to a quote, paraphrase or reference to a text or object.

Don't over footnote; provide one whenever you are utilising an idea from another writer that is not a well-known fact / something that could be assumed to be common knowledge.

Referencing with the bibliography- at the end of the text you may have a bibliography in which the book appears in alphabetical order according to author:

Bibliographies should list every book used in the construction of your argument, whether explicitly cited in the text or not. More traditionally a bibliography would list the complete corpus of writings on a topic; anything less complete would be called "References" or "Works Cited." Bibliographic citations have different forms than the footnote/endnote and are listed alphabetically according to the author's last name. If you use more than one work from a single author, list these in ascending chronological order. If a text has more than one author (e.g. Deleuze and Guattari), use the name that appears first on the title page of the text.
Remember that bibliographic references and footnotes/endnotes vary slightly in form. The former is considered a complete and independent phrase; the latter is a dependent, an extrapolation, or refers to the main text.
Using "ibid" and "op. Cit." - Most people who use "ibid" within their citations do so improperly. Ibid may be used only when a reference is exactly the same as the one immediately preceding it. You may not use ibid if any aspect of the reference is different besides the page number.

For example:

35 Ibid, 67

"op. cit." or "loc. cit." [Latin abbreviations for "in the works cited" and "in the place cited" respectively] are often used to refer to a previously cited work.

For example:

57 Krauss, op. cit., 78

Both of these methods can confuse the reader and are prone to mistakes. For example, what if you also referred to another book by Krauss earlier in the text, but overlooked this fact? Or, of the last reference was pages before, the reader must do too much work to find the information. In such a case, using "op. cit." could misdirect the reader. As a result, general use of "ibid" and "op. cit." is now discouraged. Instead, use the short form of author, date, page number. This does not take any more time, is clearer, and avoids any confusion due to mistakes in referencing. For word processing, it has the added advantage of remaining correct even if the citation moves to a different point in the text; this is not necessarily so with the abbreviations.

Examples of some basic references-

Footnote:


The footnote's bibliographic reference:


The following examples are offered as bibliographic references.

Two authors:


An article in a journal:


An article or essay on an edited anthology or monograph:


An edited anthology or monograph:


An entire internet site:


Information form a website:


Quoting Material

If a quoted passage of text is shorter than three lines, it should be indicated by quote marks ("and").
If you leave out part of the quote, use an ellipsis (….) at the point of omission unless it is absolutely obvious the quote is a fragment. If the omission occurs at the end of a sentence add a period or ending punctuation. If the omission is longer than three lines of text, indicate this by breaking the quoted text into a new paragraph after the ellipsis. For example:

As Georges Bataille states “monsters thus would be the dialectical opposite of geometric regularity.”

If longer than three lines it should be set on its own without the use of quotes-

As Georges Bataille states in his short essay, “Deviations of Nature:”

Without broaching… the question of the metaphysical foundations of any given dialectic, one can affirm that the determination of a dialectical development of facts as concrete as visible forms would be literally overwhelming…

From this statement, one can begin to understand the problematic moment when the ideal, the average becomes epistemologically consonant – they are, as Georges Canguilhem argues, degree zero of monstrosity.

Quotes within quotes should use single marks (‘and’)-

As Georges Bataille states, “a ‘freak’ in any given fair provokes a positive impression…”

Research Resources

There are a number of libraries and archives in close proximity to the AA. Unfortunately, membership – subject to expensive user fees – is often a requirement. Letters of introduction can be obtained through the Graduate School.

The Architectural Association Library

A well-stocked architecture library that includes a vast collection of sources on individual architects and buildings. The material is particularly useful if you are researching contemporary design agendas or former AA graduates/teachers (e.g., Archigram). Resources in other disciplines are somewhat limited, but materials are available through Interlibrary Loan from the British Library.

The British Library – King’s Cross/St Pancras

Copyright library – holds at least one copy of almost anything that has been published in the United Kingdom. Recent publications may not be in the system yet. The BL is closed stacked and non-lending (there are reference materials on accessible shelves in the reading rooms). Some material is out-going, but may take up to three days for delivery. In-house material arrives within the hour. Students must obtain a letter of introduction from the AA’s Librarian to get a reader’s pass, and bring proof of I.D. and proof of address to get a student reader card. The catalogue is online at: http://catalogue.bl.uk/F/?func=file&file_name=login-bl-list

British Film Institute

21 Stephen Street (off the west side of Tottenham Court Road, between Sony and cinema). Extensive archive of materials relating to television and film, some photographic archives and a stills and poster archive. A reader’s pass is required but an annual subscription is available at student rates.

Senate House Library

Malet Street and Russell Square – this is the collective library for the University of London, lending and mostly open stacks. The architecture section is average at best. The American Studies section, English fiction and special archives: magic, maps etc. are stellar. Reader’s passes are required for an annual charge and overdue fines are steep.

Various Libraries of University of London Colleges

These vary in emphasis and quality of collections according to the focus of the college concerned. Usually, you will need at least a letter of introduction to be admitted. These are most helpful if you know of a special archive concerning your topic.

Royal Institute of British Architects

Portland Place – The RIBA has an expansive collection of drawings and other materials, obviously strongest on all things concerning British Architecture. Proof of identity and a student ID card are necessary; use of the library on site is free.
National Archives

Kew Gardens – The National Archives is the UK government’s official archive, preserving official information for 250 government and public sector bodies, between 2003 and 2006, three government bodies joined together to form the National Archives: The Public Record Office, the Royal Commission on Historic Manuscripts, and Her Majesty’s Stationery Office. There is an online catalogue available at: http://www.nationalarchives.gov.uk/catalogue/default.asp?j=1.

Museums

Most of the national, themed and regional museums have at least some form of a library. For example the British Library has an accessible collection of prints and drawings. The Imperial War Museum holds archives relating to warfare, defence policy etc. These are usually free to access, but their archives require you to present a special interest.

Book Searches

British Library: http://catalogue.bl.uk/F/?func=file&file_name=login-bl-list – Books and periodicals from the British Library can be ordered via Interlibrary Loan through the AA Library.

Bodleian Library Catalogue: the University of Oxford catalogue is available online at: http://solo.bodleian.ox.ac.uk/primo_library/libweb/action/search.do?dscnt=1&fromLogin=true&dstamp=1315323562574&vid=OXVU1&fromLogin=true

Library of Congress: The online catalogue is available at: http://catalog.loc.gov/

Bibliothèque Nationale: The online catalogue is at: http://www.bnf.fr/en/collections_and_services/catalogs.html

COPAC: combined web-search of catalogues of the following institutions: Cambridge University, Edinburgh, Glasgow, Leeds, Oxford, Trinity College Dublin: www.copac.ac.uk

British National Bibliography: This lists the books and new journal titles published or distributed in the United Kingdom and Ireland since 1950. Available online in the British Library.

OCLC: an online catalogue by country of books catalogued using this cooperative cataloging system. Available at: http://www.oclc.org/uk/en/global/default.htm

Academic Articles

Avery Index (for architectural articles): AA Library website under ‘Online Resources’

Art Index Full Text: AA Library website under ‘Online Resources’

Newspapers – British newspapers are indexed within the British Library integrated catalogue at: http://catalogue.bl.uk/F/?func=file&file_name=login-bl-list

General Guides

The new Walford: guide to reference resources / editor-in-chief, Ray Lester. This is the most complete single source for the UK. Available at the British Library.


Manuscripts and Archives

AIM25: AIM25 is a major project to provide electronic access to collection level descriptions of the archives of over one hundred higher education institutions, learned societies, cultural organisations and livery companies within the greater London area. See: http://www.aim25.ac.uk/

Archives Hub: A major national gateway to archive collections held in UK universities and colleges, forming part of the National Archives Network. See: http://archiveshub.ac.uk/

National Register of Archives – available through the National Archives at: http://www.nationalarchives.gov.uk/nra/default.asp

Public Records (See: National Archives)

Congressional Information Service: at the British Library.

Architecture


Maps


AA Library has a very small map collection, and the BL also has maps.
Computing Guidelines

Owning
Computing recommendations are notoriously hard to make—there are many variables to consider and the market is especially fast changing. These recommendations, written in September 2010, will likely already be out-of-date by the end of the year. This section is intended only to offer some general buying guidelines.

Everyone in the MArch (A&U) is required to own and use a personal computer. The majority of students work from laptops although some students purchase powerful and cheap desktops. As the DRL has dedicated studio space it is possible to have a desktop permanently set up in the studio. Although desktops far outperform their laptop counterparts, most students opt for laptops so that they have the convenience of taking their work home in the evenings when the studio closes. It should also be noted that you will need a laptop to participate in the software courses as these do not necessarily take place in the studio space or in a dedicated computer lab.

The DRL academic year kicks off very quickly, although you will not need a computer on the first day of term, we strongly recommend you make a purchase within your first week if possible as computer software classes begin in week 2.

Purchasing a computer - the hardware specs:
The most important parts to consider when purchasing a computer for the kind of work undertaken in the DRL includes;

- Processor speed & number of cores (Gb mHz speed)
- RAM (computer memory in Gb)
- A large hard disk (size in Gb, speed in RPM)
- A very powerful graphics card that works well with open GL applications. (Mb, or Gb)

In general, the higher the value(speed,memory etc) of each part above - the better!

Most often people overlook the importance of the graphics card, which radically affects the size and speed of the 3d computer models that can be worked on. Both laptop and desktops may be purchased that have graphics cards dedicated to 3d modelling in particular. These are often referred to as 'workstation class' graphics cards(cards built for open GL 3d modelling). The two most well known models for such tasks are the nVidia Quadro FX series of cards and the ATI Mobility Fire GL series. A number of the faster cards that come standard with some high-end laptops and desktops also perform well.

Note: Often it is cheaper to purchase a computer online. Especially if you are purchasing from a larger company such as apple, dell, sony, etc.

Students require a system that can reliably run today's most advanced, processor-intensive, modeling programs; notably, Rhino3D, Maya, and Catia. This means a powerful processor (don't buy a new machine with anything less than Core2 Duo 2.66 gig mhz or more), a lot of RAM (2Gb of RAM minimum - preferably 4 or 8), a good graphics card (500Mb or higher) and plenty of hard-drive space 80Gb up laptops; desktops will come with more (often in terrabytes); you will definitely use it. These figures are minimum recommendations - if you can afford something faster we strongly recommend it.

Desktop v. Laptop
In general, it is possible to purchase a desktop with much better hardware (including faster processors, more RAM, better graphics card and bigger hard-drives) for a lot less money than in a laptop. And additionally, some high-performance desktops can not even be matched by the best laptops. The downside with a desktop is obviously its lack of mobility when compared to a laptop.

Desktops are easy to upgrade and add devices—an attractive option for systems that will become out of date by the end of their first year of use (Moore's Law, the famed pattern of computing processor power evolution, states that computers will more than double during your sixteen-month study in the AADRL).

Desktop Choices
You have two main desktop choices: buy one, or build one. If you've never been around computers, obviously, buy one—don't even think of purchasing parts and assembling one yourself (although if you really want to save money you might be able to pay someone in Phase II; its neither hard nor time consuming—its just that these days companies like Dell have made the potential saving much less than it was only 2–3 years ago). The best source in London for computing hardware are the Saturdays-only British Computing Fairs, off Tottenham Ct. Rd.
Laptop Options

There are a wide variety of laptops available on the market, however it is important to find one that will perform for 3d modelling. Please follow carefully the criteria discussed already - especially in regards to graphics cards. Some laptops don’t even have a dedicated graphics card - which means it borrows memory from elsewhere for the graphics. Such laptops are totally inadequate for studio work. Most 15inch and 17inch laptops have dedicated graphics cards, and it is just important to choose one that has a high level of performance. It is possible to find a laptop you will be happy with in many brands and makes, however here we suggest laptops that have good reputations for performance, maintenance (if you purchase a 1-3yr warranty plan), and availability to buy.

The Dell and HP options below are windows based and have workstation class graphics cards. The macbook pros, although not with a workstation class graphics card, do perform reasonably well.

Dell

The Dell Precision range of laptops are full workstation replacement machines with workstation class graphics cards. If you look at the dell website, sometimes the Precision models are only found in the business sales section of the website although anyone can purchase them.

Laptops are often described in inches based on their screen size. Once again size affects performance; the larger 17inch Precision models such as the M6400 tend to perform better than 15.4inch models such as the M4400.

If the Precision range is outside of your budget, the Dell Inspiron series - although not officially endorsed for 3d modelling, still has some high end models that perform quite well. (If you purchase the optional extra RAM etc.)

For additional savings: go to the ‘refurbished’ site at Dell.co.uk (or the dell online stores in other countries) to buy already-built machines for an additional 10% discount—these are machines already made, sent to someone who return them for whatever reason. Dell sells them as refurbished even if brand new and gives same warranty/coverage protection. They are an excellent choice because the machines are already built and can be shipped next day—meaning you get the machine immediately.

HP

Similar to dell, HP compaq have a series of models of laptop that are workstation-class.

The HP compaq Elitebook 8730w Mobile Workstation or the 8710w are good competitors with the dell's listed above. Similar to the dells, if you can not afford the mobile workstations HP does offer cheaper laptops. Just be sure to check that it meets the suggested minimum criteria listed in this document.

Macs

During the last few years there has been a huge increase in Mac laptops within the studio. (More than 50% of students). It should be noted that the majority of software still learnt in the DRL is within windows. However now that macs use intel chips, with the introduction of bootcamp, it is possible to run windows on a mac. Many people who work on a Mac in the studio do work either in windows, or in the Mac OS where they run windows through a software emulator such as Virtual PC or VM Fusion. The Macbook Pro series of laptops have exceptional performance for graphics applications such as photoshop and illustrator. Although they do not perform as well in 3d modeling applications most students who own them consider this a minor shortfall to all the other benefits in working within Mac OSX, and haven't noticed too much the difference in performance for 3d modeling. Once again, we recommend you purchase the top end model where-ever possible.

Insurance

Everyone in studio is required to have their personal machines insured in order to use them in the MArch (A&U) studio. The AA has a company it recommends for personal computer coverage, which costs around £100 per year, which is well worth it -- it is not safe to have a laptop without coverage in a city like London. We have had machines stolen in the past; from the studio, from people's bags carrying them home at night, and from their flats. The experts regarding what's really current and needed for the studio are of course the current students in the program: talk to the Phase II people if you have any further questions
AADRL SOFTWARE SURVEY

Please fill in the form and return to the Bedford Sq office. This survey is intended to help us plan software tutorials and topics for the upcoming year (it is for information purposes only; you do not need to sign this form).

1. YOU

ARE YOU (circle one): PHASE I or PHASE II?

YOUR HOME COUNTRY (PASSPORT):

WHICH CITY & COUNTRY DID YOU MOVE HERE FROM?

NATURAL LANGUAGE(S) SPOKEN/READ (PLEASE LIST IF OF MORE THAN ONE):

PROGRAMMING/SCRIPTING LANGUAGES: ARE YOU PROFICIENT IN:

- C++, VISUAL BASIC, OR JAVA (FOR APPLICATION DEVELOPMENT) YES NO
- JAVASCRIPT (FOR HTML/WEB PAGES) YES NO
- AUTOCAD SCRIPTING (AUTOMATING/CUSTOMISING DRAWING/DRAFTING) YES NO
- STUDIOMAX SCRIPTING (AUTOMATING MODELING) YES NO
- LINGO (SCRIPTING DIRECTOR MOVIES) YES NO
- ACTIONSCRIPT (SCRIPTING FLASH MOVIES) YES NO

2. YOUR COMPUTING EXPERIENCE BEFORE DRL

DO YOU HAVE PREVIOUS COMPUTING EXPERIENCE? YES NO

TAKEN PREVIOUS COURSES/TRAINING? YES NO

WHICH WERE YOUR MOST–USED PROGRAMS BEFORE AADRL?

- FOR DRAFTING?
- FOR MODELING?
- ANY OTHER TYPES OF PROGRAMS?
- HAVE YOU EVER MADE DIGITAL MODELS BEFORE DRL? YES NO
- HAVE YOU EVER DONE DIGITAL DOCUMENTS: QUARK ETC BEFORE DRL? YES NO
- HAVE YOU EVER MADE A CD BEFORE DRL? YES NO
- HAVE YOU EVER MADE A WEB–PAGE BEFORE DRL? YES NO

PHASE II STUDENTS: WHICH IS NOW YOUR MOST–USED PROGRAM? (name):

3. YOUR HARDWARE

DID YOU COME TO THE AADRL WITH A COMPUTER? YES NO

DO YOU CURRENTLY HAVE A COMPUTER? YES NO

HOW MANY? (write number):

- LAPTOP OR DESKTOP?
- PROCESSOR SPEED?
- AMOUNT OF RAM?
- OPERATING SYSTEM?
4. COMPUTER PROGRAMMES

(CIRCLE IF INSTALLED ON YOUR COMPUTER AND INDICATE YOUR CURRENT LEVEL OF ABILITY):

(1 = haven’t used at all; 3 = familiar with; 5 = expert)

MODELING:
- 3DSTUDIO MAX: 1 2 3 4 5
- MAYA: 1 2 3 4 5
- RHINO: 1 2 3 4 5
- CATIA: 1 2 3 4 5
- MATHEMATICA: 1 2 3 4 5
- Other? (name)

DRAFTING:
- AUTOCAD: 1 2 3 4 5
- MICROSTATION: 1 2 3 4 5
- Other? (name)

IMAGE/GRAPHICS:
- ILLUSTRATOR: 1 2 3 4 5
- PHOTOSHOP: 1 2 3 4 5

WEB/PRESENTATIONS:
- DIRECTOR: 1 2 3 4 5
- DREAMWEAVER: 1 2 3 4 5
- FLASH: 1 2 3 4 5

Which applications would you most like to know better?

5. SOFTWARE MANUALS

Which programme do you currently most often need or want to use a manual?

Which programmes have you bought a manual or book for?

Do you have a favorite book or manual for any of these programmes?

3DSTUDIO MAX:
- MAYA:
- RHINO:
- CATIA:
- AUTOCAD:
- MACROMEDIA (FLASH, DIRECTOR, etc)

6. AADRL WEBSITE

Have you visited www.aaschool.ac.uk/aadrl/?

DID YOU VISIT THE SITE BEFORE COMING TO THE DRL? How Long Before?

If yes, which parts were most helpful?

Least helpful?

What isn’t on www.aaschool.ac.uk/aadrl/ site now that you’d like us to include?
MArch (Architecture & Urbanism)
2019-2020

Architectural Association