Co-funded by the
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Knowledge Alliance
for Advanced Urbanism

WP 5. Common resources for education and training in advanced urbanism

KAAU D 5.1 Identyfing Current Practices in Advanced Urbanism Education

April 2016

Report developed by:

Mcrit fundacióErsília

With the support of:

Iaac Institute for advanced architecture of Catalonia · Università degli Studi di Genova · GENOVARCHITETTURA · ENSAM École nationale supérieure d'architecture Montpellier · SANTA & COLE · darts · Technilum mobilier urbain d'éclairage · usefulsimpleprojects · inAtlas · FAV · ACTAR

WP 5. COMMON RESOURCES FOR EDUCATION AND TRAINING IN ADVANCED URBANISM

KAAU D 5.1 - Identifying Current Practices in Advanced Urbanism Education

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0 - Foreword

The increasing availability of data creates new opportunities not only for monitoring and management, but also for changing the way we describe, understand and design cities, challenging many fundamental assumptions of city design and planning professions.
In order to promote the innovative education and training that emerging technologies require higher educational institutions together with industrial partners have created the Knowledge Alliance for Advanced Urbanism (KA-AU).
The group understand “Advanced Urbanism” as the sensitive integration of ICT in cities, taking in consideration cultural heritage, environmental and social dimension issues. “Advanced Urbanism” is about designing and planning processes instead of just concrete artefacts, linking citizens, business and governments into sustainable urban business cultures. “Advanced Urbanism” requires changing traditional design and planning practices towards more open, collaborative and interdisciplinary practices.
KA-AU develops courses, symposiums and an educational and an training platform, with the objective of offering to the participants an innovative education on planning.
KA-AU is co-funded by the Erasmus+ Programme of the European Union.

1 - Objective

This report presents innovative, critical and inter- trans-disciplinary pedagogies on Advanced Urbanism education that engage undergraduate and graduate students in activities such as case based cooperative learning, problem solving, experiential learning and the use of online interactive resources and simulations, that may be considered in KAAU educational and training programmes. Furthermore we reviewed relevant graduate programmes in Advanced Urbanism, which are being offered in the EU.
The material gathered will give useful insights to design and develop common educational and training resources for future Advanced Urbanism educational programs.
This is deliverable 5.1 and is part of the common resources for education and training in Advanced Urbanism.

2-Methodology

The report is based on an intensive literature review and internet search. We looked for innovative inter- and transdisciplinary learing methods in the field architectural, engineering and planning, then looked for these methodologies best practices in higher education. On the other hand we have sought courses , research centres and graduate programs in Advanced Urban Planning to learn from both their content offer, and engaging methodologies.
Most relevant references are listed below:

- Archnet-IJAR (2010) Delivering Theory courses in Architecture: Inquiry-based, active and experiential learning integrated. Special Volume: Design Education: Explorations and Prospects for a Better Built Environment Ashraf M. Salama and Michael J. Crosbie (editors), Volume 4 - Issues 2-3 - July and November 2010 - (278-295)

- Willem van Winden (2014) Connecting cities, building successes: The city as a classrome and living lab: How universities can benefit from a deeper local involvement

- Sir Terry Farrell (2015)The Farrell Review of Architecture + the Built Environment. Commissioned by the Departement for Culture, Media and Sport

- Baldwin et al, (2013) Expanding Experiential Learning in Australian Planning Schools, 49th ISOCARP CongressSchools Forum on Planning Education: Are we doing it right?

- Policy Statement on Initial Planning Education (2012) RTPI Mediation of space, making of place

- Dr John McCarthy and Dr Samer Bagaeen (2014) Sharing good practice in planning education. Higher Education Academy

- Working Papers Series: Smart Cities of the Future. Centre for Advanced Spatial Analysis University College London

- Global education for Urban Futures. Urban Pamphleteer # 5 (2015) UCLurbanlab. Available online at www.ucl.ac.uk/urbanlab/research/urban-pamphleteer

3- Innovative, critical and inter- trans-disciplinary pedagogies on built environment education

In a world that is both rapidly urbanising and globalising, it is widely acknowledged that it is crucial to facilitate urban education that is cross-, inter or trans-disciplinary; based on global but also on local knowledge and engaged with live projects or taught through active learning approaches defined as inquiry based, practice-oriented or laboratorial that facilitate overcoming traditional barriers: the Institutional and discipline-based contexts. In the last decades, two trends have reinforced, to some extent, the local and regional engagement of universities. The first is a broad societal pressure on universities to become more “engaged” with society, associated with new incentive schemes that encouraged universities to develop more links with partners in their home city and region. Second, a growing number of universities have adopted project-based and/or problem-based learning methods, in which students learn by working on real-life problems. (vanWiden, URBACT Programme,2001)

3.1 Problem based learning

The Problem Based approach [Boud, D., Feletti, G (1997)] follow a socio-constructivist concept and promotes the inductive way of learning, as students are encouraged to discover, test structures and apply the knowledge obtained to new situations. While solving the problems, students must be carefully guided by teachers to learn the associated scientific concepts and procedures. Also, the problem-based approach

requires students to reflect upon the whole resource by predicting, hypothesising, and experimenting to produce a solution.

Problem based project work at Aalborg University (Denmark)

One of Aalborg University's trademarks is the problem-based, project-organised model (PBL, or Problem Based Learning). The philosophy behind PBL is that the interaction between academic theory and professional practice develops the students' ability to analyse and solve complex problems in a more independent and innovative manner than is the case in traditional university teaching. Naturally, students are also introduced to theories and methods through lectures, courses and workshops. In each semester, there is a large, mandatory project, in which the taught theories and methods are applied. Every semester has a curriculum that outlines the goals for the semester and what problem students attending the semester will be working on solving (PBL). The curriculum states a number of tasks of theoretical, methodical, technical and functional character, which must be met in the project. The modules are evaluated either through written or oral exams.
http://www.en.aau.dk/education/problem-based-learning/

3.2 Project based learning

The Project Based approach [Markham, 2003] being mostly applied in Architecture & Engineering schools World-wide, it requires teachers playing a role guiding and supporting students in the successful development of a number of projects. Project Based Learning organizes learning around projects or complex tasks precipitated by an in-depth question or problem. Students, particularly in the higher education setting, are encouraged to be self-directed and the learning path becomes the curriculum as the concepts are absorbed and idea development connects itself to the outcome. Generally, the scope of PBL is larger and broader than a traditional assignment, but its application can range from days spent to semester projects depending on the pedagogic motive of understanding a concept or embracing an entire topic.

Demola project (Originally fromTampere Finland, currently in many other European Cities)

Demola is an international organization that facilitates co-creation projects between university students and companies, either locally or internationally.

To be more specific, Demola is:

- **a network** that consists of various partners including universities, their faculties, researchers and students, as well as companies, local agencies and a growing number of Demola Centers around the globe. Not only are we international, we are interdisciplinary.
- **a process** that is formatted and facilitated. The Demola process ensures that the work is systematic and runs on schedule. This way, the work itself can be as creative as possible, but the process keeps things under control both in terms of time and deliverable.
- **a co-creation** concept that is geared to solve real challenges. Every project has an outcome – be it a new concept, a demo, or a prototype. If the partner company finds the outcome useful, the company can license or purchase the outcome, and take it for further development.
- **a framework** that makes is easy for partners to come in and cooperate. Each partner has a clear role, and the work is guided by simple procedures. Contracts, intellectual property rights, licensing models, and other legal requirements are in place and meet international business standards and practices.

The Demola organisation collects research questions and challenges from a variety of organisations in Tampere (companies, hospitals, government agencies, NGOs, etc). It publishes the assignments on a website, including the type of skills that are asked for. Students are invited to subscribe to a project.
Demola then assembles student teams to address the projects, and offers a range of support and training activities for the student teams. Demola is an internationally recognized best practice programme that has been copied in various other cities.
The results of any project are owned by the students. If the company wants to use the results, students can sell licenses (worth €3,000- €7,000) or develop the idea further into a start-up. From 2008-2011, about 95% of completed projects were licensed, students earned €700,000 through licensing fees. Also, Demola boosts labour market opportunities and encourages entrepreneurship. 15% of students were head-hunted after the projects. Before the courses only 30% of students indicate to become entrepreneurs while at the end of the course that figure grows to 75%
http://tampere.demola.net/

3.3 CDIO approach

In the late 1990s, the Massachussets Institute of Techonology (MIT) engaged in a rigorous process to determine the knowledge, skills and attitudes that graduating engineers should possess. They surveyed industry and government leaders, alumni, and educators, and examined industry and accreditors' wish-lists. The results show that the success of real-world engineering requires more than knowledge of engineering fundamentals; it requires abilities ranging from experience with hands-on design-build projects to skills in communications and teamwork.

Curricula were modified to include design-and-build projects. Conventional subjects were coordinated to demonstrate the interdisciplinary nature of engineering. Challenging experiences were created in which students design, build and operate product systems. Graduating engineers should be able to conceive-design-implement-operate complex value-added engineering systems in a modern team-based environment. CDIO framework provides students with an education stressing engineering fundamentals set in the context of Conceiving – Designing – Implementing – Operating (CDIO) real-world systems and products.

- **Conceive**: Defining customer needs; considering technology, enterprise strategy, and regulations; developing concepts, techniques and business plans.
- **Design**: Creating the design; the plans, drawings, and algorithms that describe what will be implemented.
- **Implement**: The transformation of the design into the product, including manufacturing, coding, testing and validation.
- **Operate**: Using the implemented product to deliver the intended value, including maintaining, evolving and retiring the system.

CDIO a project learning approach, MIT Engineering Studies (Massachussets, USA)

In the late 1990s, MIT's Department of Aeronautics and Astronautics (MIT Aero-Astro) engaged in a rigorous process to determine the knowledge, skills and attitudes that graduating engineers should possess. They surveyed industry and government leaders, alumni, and educators, and examined industry and accreditors' wish-lists. The results show that the success of real-world engineering requires more than knowledge of engineering fundamentals; it requires abilities ranging from experience with hands-on design-build projects to skills in communications and teamwork.

Curricula were modified to include design-and-build projects. Conventional subjects were coordinated to demonstrate the interdisciplinary nature of engineering. Challenging experiences were created in which students design, build and operate product systems. In addition to theoretical problem solving, classes now include team-based projects progressing in complexity toward an elective capstone design course that requires students to integrate and apply their cumulative knowledge to a comprehensive project. http://web.mit.edu/edtech/casestudies/cdio.html

3.4 Interdisciplinaty and Inter-professionalism approaches

Interdisciplinary System approach is a process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline or profession. It draws on disciplinary perspectives and integrates their insights through construction of a more comprehensive perspective.

Queen's University Belfast's project "Design in the Built Environment'

At postgraduate level, Queen's University Belfast's MSc Environmental Planning programme involves a project within the 'Design in the Built Environment' module which is run in collaboration with Stage 3 BSc Architecture students who are preparing design proposals for key sites in a local town. Planning students start by developing skills in visual communication and design, using specialist software such as Photoshop and SketchUp, and then work in groups to prepare an urban design strategy, after which they act as development management professionals, meeting and advising 'architects' (architecture students) on their design proposals. This allows planning students to develop skills in site analysis, review of visual information prepared by other built environment professionals, and negotiation.

MSc Planning programme interdisciplinary exercise

The University of Plymouth's postgraduate MSc Planning programme includes an exercise involving students working with other disciplines (from the Sustainable Environmental Management and Environmental Consultancy programmes) in a day-long mock public inquiry relating to a case of mining development in a sensitive location. Students are videoed to allow more effective reflection on their experience.

University of Sheffield's 'Integrated Project'

The University of Sheffield's 'Integrated Project' within the postgraduate MA Town and Regional Planning/Dual MArch in Architecture and Town and Regional Planning. This project, in the second semester, applies knowledge and skills from the first semester to a real-life planning problem. It leads to design proposals and financial appraisals, and subsequent adjustments to design. Planning students work alongside real estate students as well as those on the dual MArch programme, culminating in negotiation on a development scheme. Practitioners are also involved, including staff from the local regeneration agency.

University of Westminster's interdisciplinary modules

The University of Westminster's postgraduate MA programmes (Urban and Regional Planning, MA International Planning and Sustainable Development, and Urban Design)

include a module in which urban design and planning students work together to produce a baseline study of a chosen project area and develop strategic action plans which identify opportunities for improving environmental, social and economic sustainability. Students then diverge into their own disciplines, with planning students developing a neighbourhood plan setting out key policies for future development, and urban design students developing a spatial framework with proposals for urban structure and movement. All students subsequently come together to present and discuss their proposals.

3.5 Experiential learning

Experiential learning is a method of educating through first-hand experience. Skills, knowledge, and experience are acquired outside of the traditional academic classroom setting, and may include internships, studies abroad, field trips, field research, and service-learning projects. The concept of experiential learning was first explored by John Dewey and Jean Piaget, among others. It was made popular by education theorist David A. Kolb, who, along with John Fry, developed the experiential learning theory, which is based on the idea that learning is a process whereby knowledge is created through transformation of experience. It is based on four main elements which operate in a continuous cycle during the learning experience: (1) Concrete experience (2) Reflective observation (3) Abstract conceptualization (4) Active experimentation
Inter-disciplinary approaches such as those considered above overlap substantially with experiential learning approaches, as illustrated more generally by Higgins et al (2009). Temple (2004) highlights the importance of experiential learning, with work-based elements where appropriate, and this is linked to 'problem-based learning', which can be achieved via 'place-based education' involving real-life projects.

University of Manchester's Client-based Project

In the fourth year of the undergraduate Master of Town and County Planning/MSc Planning programmes, applies students' accumulated knowledge to a 'live' situation for an external client. The project also applies a degree of inter-disciplinarity since it involves students focused on real estate and regeneration as well as planning. Students carry out empirical work leading to a group report and presentation which outline their findings and recommendations. Possible topics available to students for 2013 included recycling behaviours in Longsight, an Oxford Street retail strategy, and a Garston Village Masterplan.
The use of a real-life client-based approach as in the examples above creditably reflects much of contemporary practice and thereby enhances the experiential learning process.

The Big Rig

The Educational Consultancy Think up created the Big Rig back in 2010 as a pop-up construction training venue to host an event called Low-Carb, in which participants built a low-carbon shower from waste construction material. Since then the Big Rig has proven itself as a versatile and robust training environment for delivering transformative learning and training.

Think Up works with training providers to establish Big Rig facilities on their premises, and then designs and facilitates training events to that take place in those facilities. The key to the success of Big Rig events is careful orchestration of the activities to allow just the right levels of challenge, excitement and jeopardy so that participants have a highly engaging and memorable experience.
http://thinkup.org/case-studies/the-big-rig/

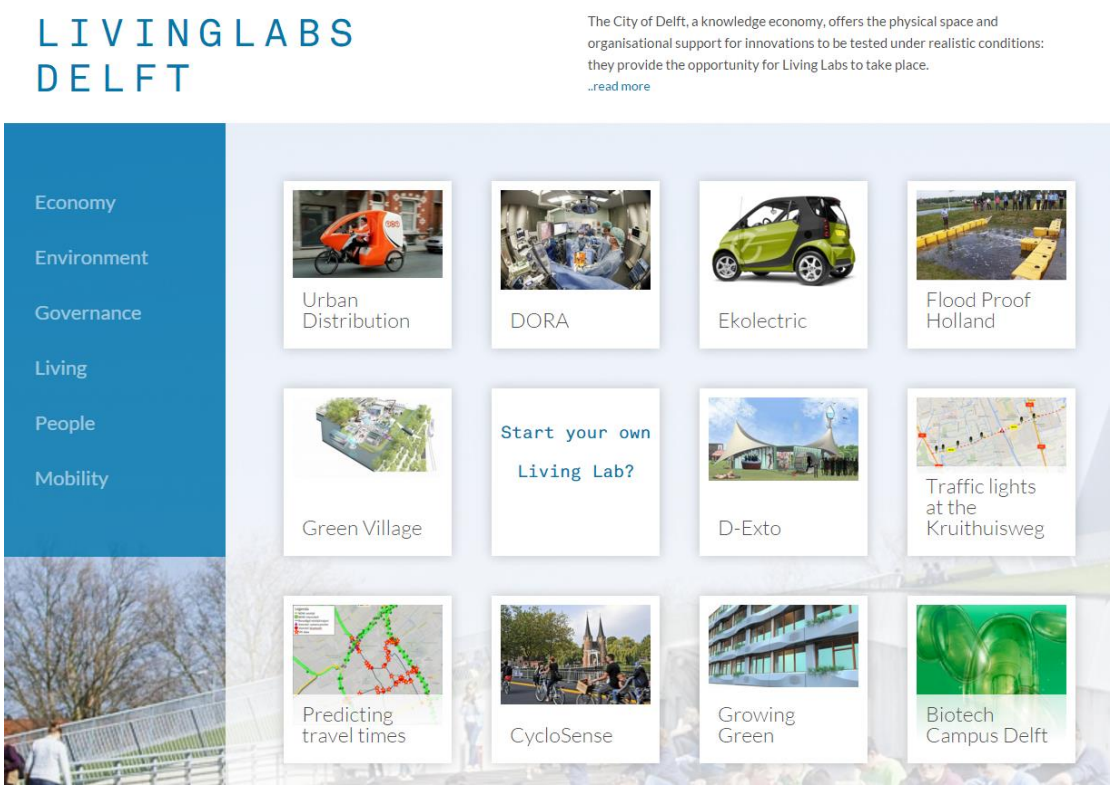
Build camp
An experience-led learning event where 16 –19-year-olds can plan, build and operate a section of railway line using real construction materials, processes and plant.
http://thinkup.org/case-studies/build-camp/

3.6 Place-based Learning

Nearly a century ago, John Dewey called for experiential learning that engages students in their own environment. An increasing number of teachers are embracing place-based learning as a strategy that captures students' imaginations and advances environmental stewardship and civic engagement. Successful place-based programs involve students as participants in the life of their communities. Successful projects demonstrate many of the following characteristics:

- Learning takes students out of the classroom and into the community and natural environment
- Projects have consequences; students' contributions make a difference to environmental quality and to the well-being of communities
- Place-based projects are integrated back into classroom lessons
- Students want to learn in order to apply their knowledge to solving real problems
- Students play an active role in defining and shaping projects
- Students collaborate with local citizens, organizations, agencies, businesses, and government. Working alongside community members, students help make plans that shape the future of their social, physical, and economic environments
- Students are encouraged to view their community as an ecosystem and to understand the relationships and processes necessary to support healthy living

Delft City Labs



The City of Delft has set up an initiative to facilitate “living labs”, real life settings in which researchers (or other innovators) can test and further develop their ideas, involving end-users in the process. Recently, the city is recognizing the potential of the city as a living lab, a place where researchers and/or companies can tryout new technologies, products and services. The city explicitly wants to provide conditions to test innovations in a real-life environment. These environments, dubbed “living labs”, are test and development settings, set up by coalitions of firms, education and research institutes, governments and users.

Some examples:

- At the campus of Delft Technical University, a new “sensitive” street lighting system was tested;
- In the “Flood Proof Holland” project, research groups can test different types of flood defence structures in the open field;
- In the “Maatwerk Distributie” project postal services, businesses and the municipality test the delivery of goods and parcels into the city center, covering the ‘Last Mile’ with innovative electric vehicles and smart ICT systems.

http://www.proeftuinendelft.nl/en/home

3.7 Service Learning

Service-learning integrates community service with academic education; students apply their classroom content to community problems, thus enhancing learning while providing needed services to underserved populations. Research has shown that service-learning can enhance classroom learning (Eyler and Giles, 1999) and is consistent with theories for increasing student retention (Tinto, 1993). In addition, the community context and social relevance of service-learning are consistent with the characteristics advocated to increase participation of underrepresented populations in STEM careers (Rosser, 1995).

The Amsterdam University of Applied Sciences (AUAS)

The Amsterdam University of Applied Sciences (AUAS) is a university with about 50,000 students, in a wide range of disciplines. It offers mainly Bachelors' courses, and increasingly invests in research capacity. The university management considers the city of Amsterdam as a real-life environment for training and talent development, and a source of promising research projects. From this perspective, the university developed a strategy to open small branches in deprived neighbourhoods. AUAS has opened "local shops for education, research and talent development", (abbreviated as BOOT in Dutch). In the shop, students (from several disciplines) offer a variety of services to the local community as:

- Counselling. Inhabitants of the area can apply for free support by students in three fields: legal advice, social support, and financial management.

- Lab Sustainable Urban Area Development. In this lab, students analyse problematic areas and develop solutions to improve the physical environment.
- Healthy Neighbourhood. In co-operation with welfare agencies, students design and implement programmes on diets and healthy living for local communities.

The students are supervised by teachers from the AUAS and by local project managers. The service offer is designed in collaboration with partners in the city borough (companies, NGOs, housing corporations, government agencies, etc): at current, over 50 partners are involved. Students who work in the shops do so as part of their curriculum: the activities are part and parcel of over 20 courses or educational modules, from several disciplines.

Public engagement initiative called 'UCL Just Space'

The planning programmes at University College London (UCL) in 2010 involved a public engagement initiative called 'UCL Just Space' in connection with the London Just Space Network, an informal alliance of community groups, campaigns and independent organisations which came together to challenge policies in the London Plan. The aim of the initiative was to connect community groups (which needed planning expertise) with planning students and staff (who were willing to do voluntary work on planning and urban regeneration issues including the preparation of responses to inquiries from the public related to the London Plan and neighbourhood plans). In 2012-13 students contributed extensively to support for community organisations in this way (see http://ucljustspace.wordpress.com/), and a protocol for co-operation was prepared to guide activities in an ethical and safe manner (see

http://justspace2010.wordpress.com/welcome-to-just-space/about-2/research-protocol/). Consequently, three students gave evidence in 2012 at the Examination in Public of the changes to the London Plan at City Hall. This activity also led to a new teaching module called 'Community Participation in City Strategies' taught by UCL geography and planning staff.

3.8 Case-based learning

The use of case studies in the urban studies literature has a long, rich, and still-growing history. The term 'case study' covers a wide range of problems posed for analysis, but most types include several key elements. Most cases are either based on real events, or area construction of events which could reasonably take place. They tell a story, one involving issues or conflicts which need to be resolved–though most case studies do not have one obvious or clear solution. The information contained in a case study might be complex (including charts, graphs, and relevant historical background materials) or simple–a human story that illustrates a difficult situation requiring a decision.

Liveable Cities the Benefits of Urban Environmental Planning

The booklet Liveable Cities the Benefits of Urban Environmental Planning offers a collection of case studies that showcase the benefits of urban environmental planning. Case studies share a common structure. Each starts with an explanation of why the case study is important, followed by a brief description of the urban context and the city's urban **management approach. The main body of the case study is then** presented, with a section that outlines the environmental entry point. Finally comes the section on results and lessons learned, wrapping up with another on replicability. The structure is designed to allow the reader to assess the relevance of the case study to his or her own city, quickly and easily.

http://bit.ly/1n1kVBZ

3.9 Game-based learning

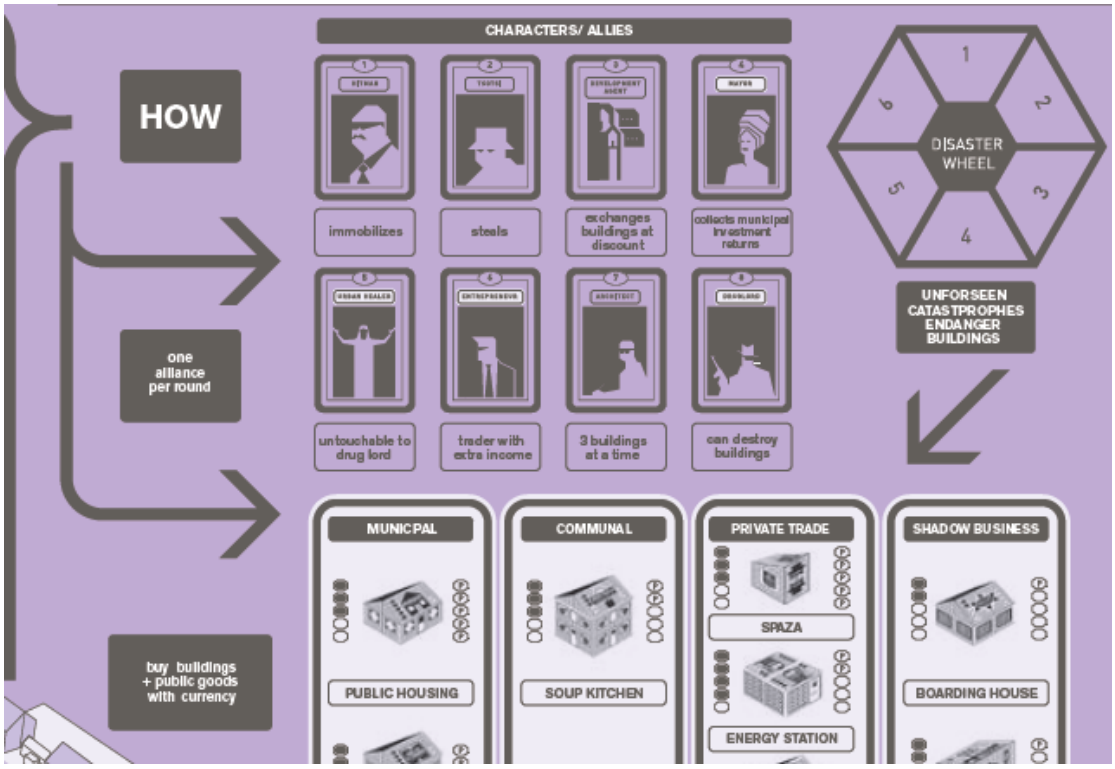
Games based learning is constructivist learning, built on theories such as situated learning, experiential learning and activity theory.

- Activity Theory: Games allow learners to participate and experiment in non-threatening scenarios.
- Experiential Learning: Games support learn by doing.
- Situated Learning: Games provide information in a relevant context or setting. Learning takes place alongside social interaction and collaboration. This latter point can be an issue with standalone games.

Within an effective game-based learning environment, we work toward a goal, choosing actions and experiencing the consequences of those actions along the way. We make mistakes in a risk-free setting, and through experimentation, we actively learn and practice the right way to do things. This keeps us highly engaged in practicing behaviours and thought processes that we can easily transfer from the simulated

environment to real life. While similar, gamification is a different breed of learning experience. Gamification takes game elements (such as points, badges, leader boards, competition, achievements) and applies them to a non-game setting. It has the potential to turn routine, mundane tasks into refreshing, motivating experiences.

Let's Play Dinner: a board game as a learning platform between politics, academia and everyday life



Rosettenville, South Africa was the location of a City Studio of Wits University, School of Architecture and Planning, in 2013/14. Rosettenville Studio was a 2-year engagement programme between the people of Rosettenville and surroundings and Wits University, School of Architecture & Planning, under the auspices of CUBES (Centre for Urbanism and Built Environment Studies). The city studio entailed training Architecture and Planning students to work with communities, and to locate their professional practice in real-life situations to disseminate findings to Rosettenville residents in a way that enables them to use them for advocacy and sustainable development. They develop Street Wise Six – a game as an alternative reporting structure in the disguise of a dinner set up. One of main aims for the development of the game was to literally get different stakeholders around one table and create a platform of learning in urban higher education between academia, politics and every day life.
http://bit.ly/1Li5mS7

3.10 Use of technology, including within feedback

Use of technology is also increasingly evident in planning practice. Spatial information technology such as GIS is now very common in many contexts, and Higgins et al (2007) point to the need for skills enhancement for the use of such technology in practice. Such methods (particularly two-dimensional concepts using off-the-shelf software) are in fact taught in many planning programmes.

In relation to wider programme delivery, many planning schools make extensive use of enhanced blended learning for on-campus students, and online or distance learning offers for remote students. Online feedback for coursework is increasingly applied by planning schools and valued by students,. This enables students to more easily appreciate the strengths and weaknesses of their work, and adds to the flexibility with which they can engage with feedback for coursework.

The use of social media is also increasingly applied in many planning schools. In relation to this KAAU has already has set up both Twitter and Facebook accounts. Students are encouraged to follow the two accounts to receive updates in their timelines.

Joint Distance Learning Consortium (JDLC)

This consortium is managed by the University of the West of England (UWE) and delivered by four universities (UWE, Leeds Metropolitan University, the University of Dundee and London South Bank University) on an equal ownership basis. Students are registered and graduate as UWE students but each partner shares responsibility for student learning, with students able to access relevant support and services from all partners. The consortium delivers its MA Town and Country Planning postgraduate programme entirely through online teaching and learning, via the UWE Blackboard virtual learning environment (VLE), which hosts a variety of resources including core module texts and supporting reading. Module leaders can also embed videos, podcasts and web links in order to more effectively engage students, who interact with the materials via guided exercises ensuring effective progression through the content.

The JDLC MA programme also embraces Facebook within its offer, as a result of the internationalisation of the programme.

3.11 Employability and linkage to practice

The changing context for planning education and employability, highlighting the need for greater practitioner input, practice-based student projects and encouragement of work experience. Temple (2004) also highlights the value of work-based learning and assessment in enhancing employability. It therefore seems desirable for planning education to have closer links with practice.

This may be achieved for instance by the involvement of practitioners in teaching via conventional ‘guest lecturer’ presentations, and/or via their involvement in practical project exercises. Both mechanisms allow students to experience the world of practice indirectly, and can inform students’ career choices.

University of Sheffield's planning school employability officer

University of Sheffield's planning school has recruited an employability officer who is employed as a teaching associate to assist in enhancing and developing student employability. This officer has worked with employers and the university careers service to develop student placement opportunities (within the MPlan undergraduate Urban Studies and Planning programme), employability sessions and student materials. Such work has led to international placements with global consultancies, as well as strategic links with private sector consultancies, and it is much appreciated by students.

Professional/career development directly into modules

The University of Manchester's Professional and Career Development module (in the final year of the undergraduate Master in Town and Country Planning programme) includes general careers advice for instance in relation to CVs, interview techniques and presentation skills, with particular reference to the built environment professions.

3.12 Conclusions and recommendations

The pedagogical approches and the good practices shortly described above clearly demonstrate innovation in built environment education both in content and delivery. Nevertheless, it is equally clear that the innovations in and applications of good practice cannot be seen as narrowly prescriptive, since the determination of what is 'good practice' is inevitably context-dependent. Thus, learning approaches and suggested examples above are intended to act simply as starting points to consider in developing KAAU educational program, which should suit its own goals, needs and resources.

4- Graduate programmes in advanced urbanism

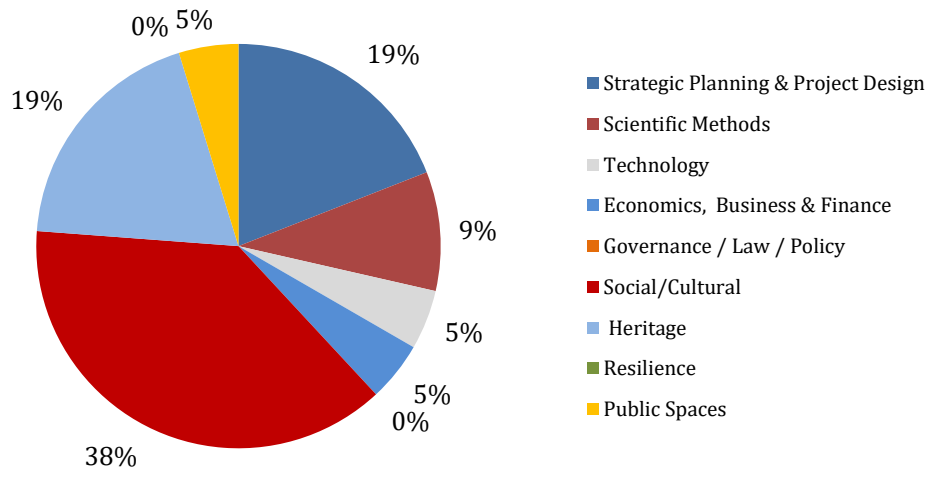
There are few, but some European Universities offer master programmes or workshops in advanced urbanism. In this section we describe and compare them in relation to their content profile and learning approches.
We consider the following content criteria:

- Strategic Planning & Project Design
- Scientific Methods
- Technology
- Economics, Business & Finance
- Governance, Law, Policy
- Social & Culture
- Heritage
- Resilience
- Public Spaces

4.1 MSc programme in Advanced Urbanism (Bauhaus- Universität Weimar)

This programme offered in cooperation with the College of Architecture and Urban Planning (CAUP) at Tongji University in Shanghai. It is a four semester programme, students spend 1 year in Shanghai and 1 year in Weimar. This master programme aims to train in design, planning, scientific analysis and mediation; become an urban curator, the competent and reflective expert of the urban realm. The degree programme is research-focused and interdisciplinary (combining Strategic planning & design, urban sociology, urban heritage, project management and spatial planning); scientific methods focuses on the history, transformation, dissolution, restructuring and reinvention of the city, as is shown in the figure below.

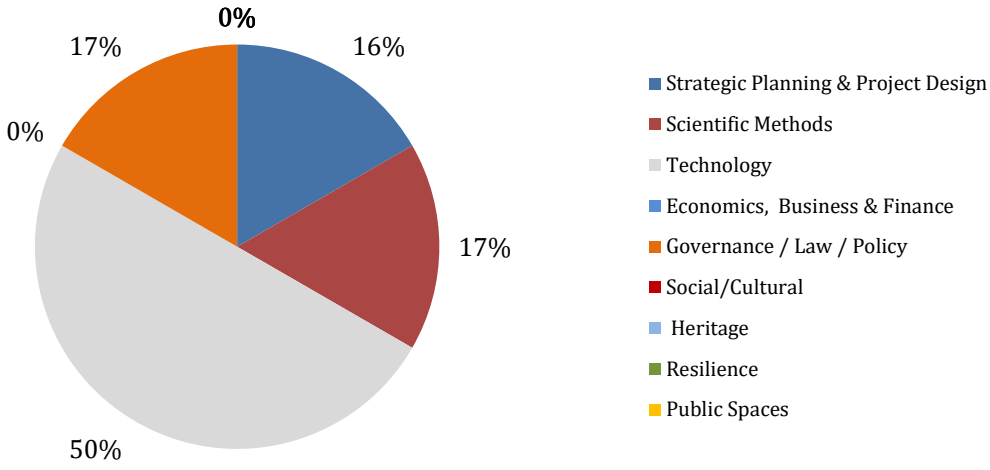
Figure 4.1 MSc programme in Advanced Urbanism (Bauhaus- Universität Weimar)



4.2 MSc Smart Cities & Urban Analytics , The Bartlett Centre for Advanced Spatial Analysis (UCL's global faculty of the built environment)

This programme is unique in its focus on the core research challenges that relate to the infrastructure of smart cities from their operational functions and planning through to management and control and optimisations to explore the notion of a city as a laboratory for innovation. It develops to provide portfolios of urban simulation which inform future design; to explore and develop technologies around sensing and flows; to create an understanding of smart systems theory and a skill set in quantitative methods, geographic information science and programing. The course reflects the change that technologies are making to the operation and our understanding of the city. The programme is modular consisting of a compulsory dissertation, six mandatory taught modules and one optional module.

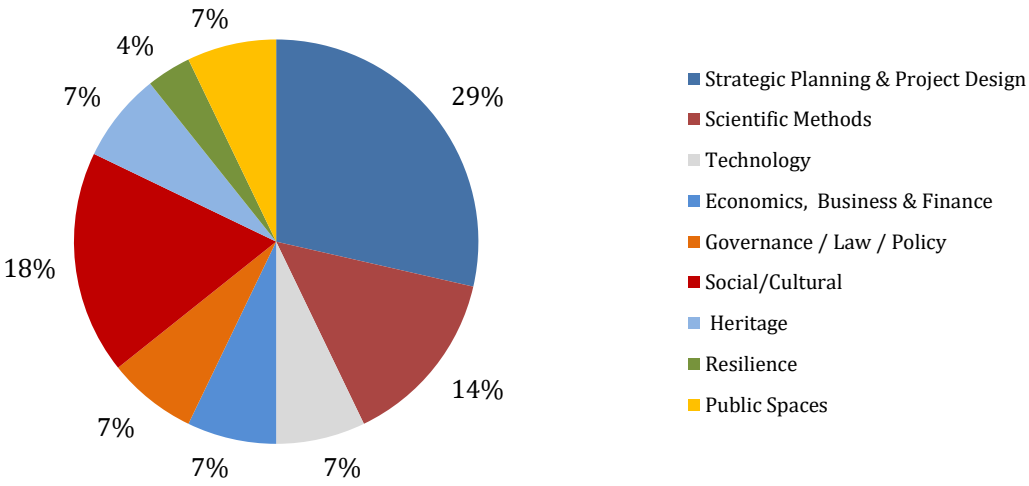
Figure 4.2 MSc Smart Cities & Urban Analytics , The Bartlett Centre for Advanced Spatial Analysis



4.3 Advanced Masters in Urban Planning and Development (AMUR), École nacionale des ponts et chaussées

This full-time, 15-month programme in urban planning and development offers a multidisciplinary postgraduate training that combines research, professional experience and international exchange within the fields of urban planning and development. The programme prepares future planners to work at different scales of the modern city. It offers a close alliance of intellectual analysis, methodological exploration, project implementation and acquisition of the skills essential for a career in urban planning. The programme offers a balanced package of coursework, seminars and workshops, each with an international dimension. In addition, two research trips in Europe and abroad are included in the programme, student trips, when students have the opportunity to observe the implementation of situations and original solutions in specific regions.At the end of course a project on a real, concrete planning issue.

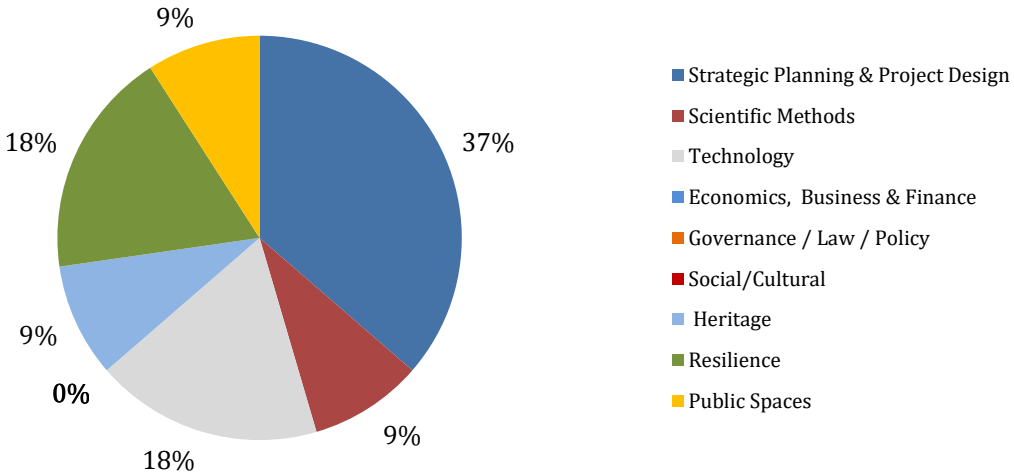
Figure 4.3 Advanced Master in Urban Planning and Development (AMUR), École nacionale des ponts et chaussées



4.4MSc in Advanced Landscape and Urbanism (University of Greenwich- UK)

This master programme encourages students to develop inventive and speculative approaches to the design of cities, landscape and territories. It promotes distinct design and research methods and the integration of new and innovative technologies to explore the complexity of contemporary cities, including issues of urban growth, climate change, globalisation and social inequality.This one year master programme focuses on design studio projects informed by classes in landscape and urbanism theory, design ecologies, future representation and design research methodologies.

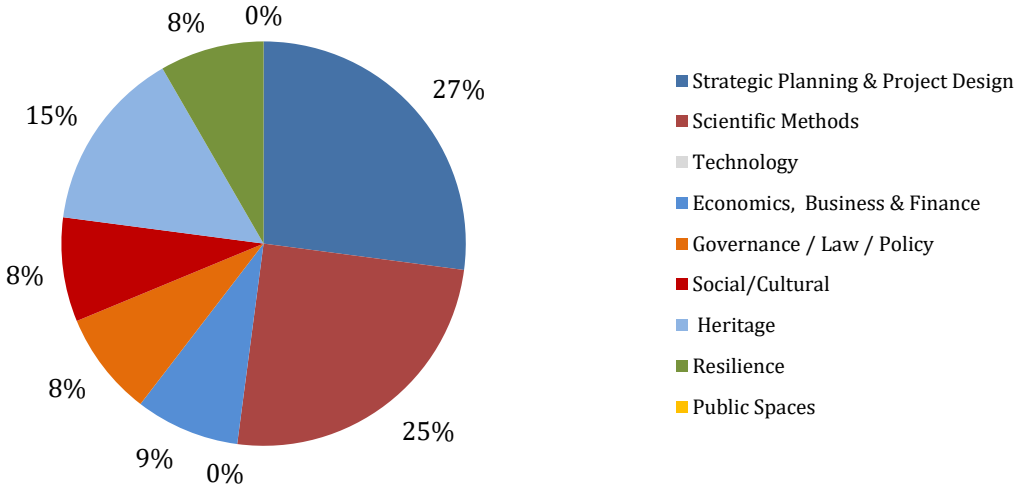
Figure 4.4 MSc in Advanced Landscape and Urbanism (University of Greenwich- UK)



4.5 Advanced Master of Science in Urbanism and Strategic Planning (MaUSP- KU Leuven)

This 4 semester professional degree. It is an internationally orientated program that addresses critical understanding of contemporary conditions of cities and urban regions. Its aim is to develop innovative concepts and strategies for qualitative interventions in the urban realm through design, planning and policies. This master programme prepares students for leadership roles in urban design, urban development and management, and strategic planning with a special focus European-wide urban issues.

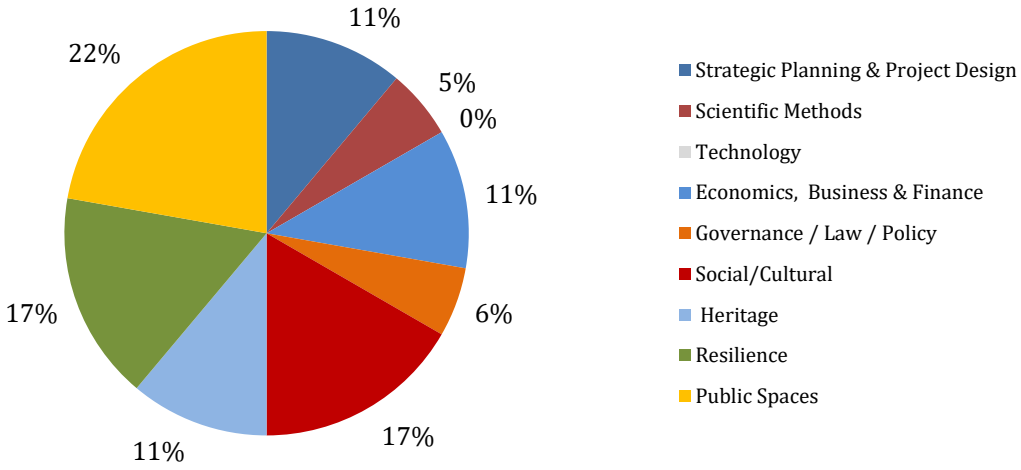
Figure 4.5 Advanced Master of Science in Urbanism and Strategic Planning (MaUSP- KU Leuven)



4.6 Advanced Urbanism Studio: Urban Spaces of the City 6.0 credits (KTH Royal Institute of Technology- Sweden)

This Studio is one of three studio series part of the International Master of Science Program in Urbanism Studies. It's an intensive design studio introducing students to a glocal issues focusing on complex elements of the public realm with attention to the urban fabric as a generator of social life in public places; the program modules (2 and 3) will provide the basis for the content that is needed to accomplish this studio. Students work in small groups/gilds to produce an urban design project with a specific proposal to a selected urban issue addressing a complex reality, social, economic, environmental, or cultural. The project advances the idea of learning from history of urban form and creating contemporary urbanism that is of "cityism" - city like qualities and character, dynamic and kinetic, of a livable community feel and democratically inclusive place, and of high urbanity where the public realm, squares, streets, quarters and public life play a pivotal role in shaping and composing the spatial form.

Figure 4.6 Advanced Urbanism Studio: Urban Spaces of the City 6.0 credits (KTH Royal Institute of Technology- Sweden)



4.7 Master of advanced studies urban design (Swiss Federal Institute of Technology ETH, Zurich)

The MAS in Urban Design is a one-year postgraduate master's program in research and design. Study is structured around an investigation of urban conditions as they pertain to global phenomena and the development of practical tools for operating within such domains. The MAS program seeks design professionals interested in the investigation and development of tools for use in regions largely beyond the control of planning. A culture of inquiry within the studio encourages the development of strong outlooks on the development of urban scenarios. Emphasis is put on research methods, incremental design, and tools of communication with the aim of preparing participants for interdisciplinary work within design offices, academic teams, or municipal agencies.
There is also the **Center for Advanced Urbanism** (CAU) at the Massachussets Institute of Technology , which objective is to become the world's pre-eminent cultural centre about the design of metropolitan environments, by articulating methods and projects to integrate separate disciplinary agendas in architecture, landscape, ecology, transportation engineering, politics and political philosophy, technology and real estate through a most eloquent design culture on scales ranging from the complex infrastructural intersection, to that of a neighborhood, on to the scale of an entire regional system.
CAU is the umbrella for various existing research laboratories and faculty projects. It organizes collaborations between these labs and other MIT groups in order to foster a cross-disciplinary expertise. This centre research areas are:

- **Climate + Urbanism:** This research area revolves around understanding the increased risks and vulnerabilities of cities due to climate change, especially in highly populated, coastal areas. From this understanding comes the core mission of designing new templates for adaptation and for protective infrastructures as well as potential relocation strategies and environmental design.

- **Environment + Urbanism:** This research area addresses urban environmental issues and their impacts on the future of the city, including: food, water, urban health, biodiversity, landscape performance, pollution and toxicity, building health, resource consumption, waste management, and more. The goal of this research is to design and develop more sustainable outcomes for cities to reduce dependence on limited natural resources and make cities healthier for all.
- **Global + Urbanism:** This area of research is specifically targeted at unique global contexts that require new models for urbanism. Global + Urbanism research is place-dependent and can vary widely based on geographic context, recognizing that urban form, protocols, and practices are radically different depending on institutional processes. No single solution can be universally applied to solve urban problems or create solutions in industrialized and developing world contexts. With the global urban world expecting rapid growth to 2050, Global + Urban research asks what new urban models can be implemented to disrupt paradigms of city-making.
- **Technology + Urbanism:** The focus of this research area is testing the long-term consequences, benefits, and second-order effects of new technologies as they are implemented in neighborhoods and across metropolitan areas. Technologies include building systems, big data, and smart cities (the internet of things). Scenarios primarily test the impacts of technology primarily on urban form and space but also considers the socio-economic and cultural consequences of introducing new technologies.

4.8 Conclusions

The advanced urbanism programmes shortly described above are varied in both content and approach, there is no clear consensus as to the meaning of advanced urbanism, what is clear is its interdisciplinary perspective on urban issues.
In term of their pedagogical approaches most of them use active learning methodologies, requiring student to participate in design studios or to conduct research and dissertation projects.

5-Annex: Master programmes full description

MSc programme in Advanced Urbanism (Bauhaus- Universität Weimar)

Description:

The Masters programme Advanced Urbanism (M.Sc.) is offered in cooperation with the College of Architecture and Urban Planning (CAUP) at Tongji University in Shanghai. It focuses on the history, transformation, dissolution, restructuring and reinvention of the city. With this programme, both universities rise to the functional and aesthetic challenges urban spaces face due to the global transformation processes affecting cities everywhere.

This four-semester programme aims to train locally and internationally active experts for the urban realm. Developing spatial competences and skills required by today's planning and design professions, comprehensive and interdisciplinary analyses of major issues in contemporary urban development are at the heart of this programme.

Advanced Urbanism offers an excellent education. The year you will spent at Tongji University in Shanghai will provide you with unique experiences. Students of our programe stand out: Being a dual programme, both the Bauhaus-Universität Weimar and the Tongji University Shanghai award successful graduates an independent Masters degree.
The Masters Programme Advanced Urbanism evolved from the interdisciplinary Masters Programme European Urbanism. Numerous curricular and extracurricular activities offer a glimpse into the current discourse on urban issues in the respective country.

In 2014, both universities celebrated the 10 years of successful cooperation in the joint degree programme.

This master programme aims to train in design, planning, scientific analysis and mediation; become an urban curator, the competent and reflective expert of the urban realm

Chracteristics:

- interdisciplinary (combines urban design/planning, urban heritage, urban sociology, project management and spatial planning)
- science and design oriented

Programme:

(1) The programme has an international orientation. Courses and examinations are held in English.

(2) The graduate programme Advanced Urbanism aims to qualify professional urbanists, i.e. experts in the field of urban development. Students acquire or improve key competencies in the following areas:

- basic knowledge of urban research in the participating discipline
- general understanding of methods and science
- scientific reflection of current difficulties arising in urban development,
- deeper knowledge of Chinese urban planning and Chinese urban development e) deeper knowledge of Chinese culture, society and history (geography)
- social skills, such as teamwork, process-orientated work, transdisciplinary empathy
- professional techniques like text production, moderation, presentation
- interdisciplinary teamwork
- intercultural communication through courses held in English and the international student body
- ability to discuss current controversial issues surrounding urban development by means of the active cultivation of discussions in the courses.

(3) The competencies listed above are expected to open the door for urbanists to various alternatives for future professional development:

- professional activities operating in the context of urban development like architecture/urban design, project management, and urban planning in the wider sense;
- professional activity in areas of society in which creative, social, scientific, interdisciplinary and intercultural qualifications are necessary, such as private enterprise, national and local departments of government, public institutions, the media and social organisations;
- professional activity with an international orientation in areas concerned with cities in Europe and worldwide;
- professional activity in scientific institutes or in further educational facilities in which teaching and research focuses on interdisciplinary and internationally orientated urban studies.
- doctoral degree

Content of the Programme

Advanced Urbanism concentrates on five principal subject areas: urban design/urban planning, urban sociology, project development, spatial planning and Chinese geography.

(2) Interdisciplinary methods- and competence training.

Structure of the Programme
The degree programme Advanced Urbanism is research-focused course of studies. It consists of seminars, tutorials, lectures, one study project, a design project, a language course, and a Master's colloquium. Students of the Bauhaus-Universität must take a Chinese language course at the Tongji University during their third semester, Chinese students have to take a German language intensive course .

The study project is interdisciplinary and is scheduled for the first or second semester. The project does not require the solution of a concrete problem. In addition, the project is interdisciplinary, employing scientific and art/design methods.

The design project is concept that reflects urban development/analysis; the criteria are variable. It is scheduled for the third semester at Tongji University.

Lectures present a concentrated version of a subject in context. They provide students with introductory and basic information of the subject as well as an overview of the context.

Seminars serve to deepen knowledge and the inductive opening up of interdisciplinarity. In addition, they serve the critical reflection of expertise and the acquisition of oral and written communication. The country- and discipline-specific preparation for the stay in China takes place in an obligatory seminar and a geography lecture.

The exercises for the methods- and competence training serve to deepen the important techniques for the professional practice of future urbanists.

The language course aims to impart basic knowledge of the host country's language and intends to support the students navigate their stay abroad.

The Master's colloquium provides the platform for presenting and discussing the Master's thesis and/or project.

Once students have passed all Masters examinations, students receive a double degree: Both Bauhaus-Universität Weimar as well as Tongji-University Shanghai award each an academic degree of "Master of Science" (M.Sc.).

Duration: 4 semesters, 3rd and 4th are spent in China

Aimed at: graduates of architecture, landscape planning, interior design, regional/spatial planning, geography, civil engineering, urban and architectural sociology, environmental sciences and other disciplines relevant to the natural and built environment

Entry requirements: The admission requirements include a professional qualification earned at a German university, a comparable qualification from a public or state university or a university recognized by the state in one of the following courses of study and/or subjects: Architecture, Landscape Architecture, Urban Design, Urban and Regional Planning, Civil Engineering, Geography, Urban and Architectural Sociology, Environmental Science, Interior Architecture or a comparable spatially-oriented science. The examination board decides on the equivalence of these courses should any doubt arise.
(2) In addition, candidates are required to achieve at least 6 points in the entrance examination with a minimum of two assessors. The points for this interview are assigned as follows:
a) the level of the previous university qualification 1 - 3 points
b) professional competence/experience 0 - 4 points
c) English language skills 0 - 4 points A minimum of 2 points each in professional competence/experience and language skills has to be obtained.

(3) Required English language skills, competence level B2 GER (Gemeinsamer Europäischer Referenzrahmen, Common European Framework), can be attested by: a) Proof of native speaker level (permission to study at a university or professional qualification earned in an English speaking country) or b) Proof of English language skills, competence level B2 GER

(4) For foreign students living in areas not covered by the German framework of legislation governing higher education (Hochschulrahmengesetz) and who cannot be reasonably expected to attend the entrance examination, their competence will be evaluated according to the documentation submitted in their application.

Learning and teaching methodologies: Three of the four semesters will deepen the scientific knowledge and impart basics in applied practice within the complex of urban studies.

The study projects in the second and third semester deal with a specific urban and/or spatial issue, that are tackled using scientific and/or design methods and in an interdisciplinary as well as practical manner.

Fees: a tuition fee of 1,000€ incurs for each semesters spent at the partnering university, i.e. a total of 2,000€ per student.

More information: https://www.uni-weimar.de/en/architecture-and-urbanism/institutes/ifeu/academic-programmes/advanced-urbanism-msc/

MSc Smart Cities & Urban Analytics , The Bartlett Centre for Advanced Spatial Analysis (UCL's global faculty of the built environment)

Description:

The MSc in Smart Cities and Urban Analytics is unique in its focus on the core research challenges that relate to the infrastructure of smart cities from their operational functions and planning through to management and control and optimisations to explore the notion of a city as a laboratory for innovation. It develops to provide portfolios of urban simulation which inform future design; to explore and develop technologies around sensing and flows; to create an understanding of smart systems theory and a skill set in quantitative methods, geographic information science and programing.

The course reflects the change that technologies are making to the operation and our understanding of the city. It builds on the need for a skill set in programming, spatial data capture and the ability for urban analysis with an understanding of the theory and context to urban systems. The programme is modular consisting of a compulsory dissertation, six mandatory taught modules and one optional module.

The MSc Smart Cities and Urban Analytics comprises 180 credits which can be taken full-time over 12 months or on a flexible modular basis of up to 5 years duration. If taken full time over one year, the following structure would be followed:

TERM ONE – 60 credits to be taken

Smart Systems Theory (15 credits) - Term 1
This course will give you a comprehensive introduction to a theory and science of cities. Many different perspectives developed by urban researchers, systems theorists, complexity theorists, urban planners, geographers and transport engineers will be considered, such as spatial interactions and transport models, urban economic theories, scaling laws and the central place theory for systems of cities, growth, migration, etc., to name a few. The course will also focus on physical planning and urban policy analysis as has been developed in western countries during the last 100 years.

This class runs during term one, for two hours per week. Assessment is by coursework (2,500 – 3,000 words).

Quantitative Methods (15 credits) - Term 1
This course will empower you with essential mathematical techniques to be able to describe quantitatively many aspects of a city. You will learn various methodologies, from traditional statistical techniques, to more novel approaches, such as complex networks. These techniques will focus on different scales and hierarchies, from the micro-level, e.g. individual interactions, to the macro-level, e.g. regional properties, taking into account both discrete and continuous variables, and using probabilistic and deterministic approaches. All these tools will be developed within the context of real world applications.

This class runs during term one, for two hours per week. Assessment is by a mix of presentations and coursework.

Geographic Information Systems and Science (15 credits) - Term 1
GI Systems and Science aims to equip students with an understanding of the principles underlying the conception, representation/measurement and analysis of spatial phenomena. It presents an overview of the core organising concepts and techniques of Geographic Information Systems, and the software and analysis systems that are integral to their effective deployment in advanced spatial analysis.

The practical sessions in the course will introduce students to both traditional and emerging technologies in geographical information science through the use of desktop GIS software like Arc GIS and Quantum GIS, and the powerful statistical software environment, R. In developing technical expertise in these software tools, students will be introduced to real-world geographical analysis problems and, by the end of the course, will be able to identify, evaluate and process geographic data from a variety of different sources, analyse these data and present the results of the analysis using different cartographic techniques.
This class runs during term one, for three hours per week (one hour lecture followed by two a hour practical). Assessment is by coursework (2,500 – 3,000 words) and exam. Plus an optional module selected from any other relevant 15 credit M-level module from UCL.

OPTIONS
In additional to the compulsory modules listed above, one other 15 credit module from the following choices running in terms one and two must also be selected.

TERM TWO – 60 credits to be taken

Smart Cities: Context, Policy and Government (15 credits) - Term 2
This course will give you a perspective of smart cities from the viewpoint of technology. It will provide a context for the development of smart cities through a history of computing, networks and communications, of applications of smart technologies, ranging from science parks and technopoles to transport based on ICT. The course will cover a wide range of approaches, from concepts of The Universal Machine, to Wired Cities and sensing techniques, spatio-temporal real time data applications, smart energy, virtual reality and social media in the smart city, to name a few.

This class runs during term two, for one and a half hours per week. Assessment is by coursework (2,500 – 3,000 words).

The indicative reading list for this module can be viewed at Smart Cities reading list

Spatial Data Capture, Storage & Analysis (30 credits) - Term 2
This course will give you a perspective of smart cities from the viewpoint of technology. It

will provide a context for the development of smart cities through a history of computing, networks and communications, of applications of smart technologies, ranging from science parks and technopoles to transport based on ICT. The course will cover a wide range of approaches, from concepts of The Universal Machine, to Wired Cities and sensing techniques, spatio-temporal real time data applications, smart energy, virtual reality and social media in the smart city, to name a few.
This class runs during term two, for one and a half hours per week. Assessment is by coursework (2,500 – 3,000 words).

Urban Simulation (15 credits) - Term 2
In this course you will learn to construct and apply models in order to simulate urban systems. These are key in the development of smart cities technologies. You will learn different approaches, such as land-use transport interaction models, cellular automata, agent-based modelling, etc., and realise how these are fashioned into tools that are applicable in planning support systems, and how they are linked to big data and integrated data systems. These models will be considered at different time scales, such as short-term modelling, e.g. diurnal patterns in cities, and long term models for exploring change through strategic planning.
This class runs during term two, for two hours per week. Assessment is by coursework (2,500 – 3,000 words).

Entry requirements: Students are required to have a minimum of a 2:2 or equivalent degree from a recognised institution and be a proficient English language speaker.

Learning and teaching methodologies: no information available

Fees: The fees for our MSc [programme code TMSARCSSC01] starting in September 2016 are as follows:
Full-time (UK/EU students) - £13,370
Full-time (Overseas students) - £22,180

Part-time study is charged on the basis of credits taken in each academic year. The full MSc course is made up of 180 credits and each module is weighted by credit values. If 45 credits were taken in Year One, then 25% of the Full-time course fee would be payable in year one.

More information:
http://www.bartlett.ucl.ac.uk/casa/programmes/postgraduate/msc-smart-cities-and-urban-analytics
https://www.uni-weimar.de/qisserver/rds?state=wtree&search=1&trex=step&root120161=18077|17565|17975&P.vx=kurz

Advanced Masters in Urban Planning and Development (AMUR), École nacionale des ponts et chaussées

Description:

In response to:

- the complexity of the processes of urban and territorial transformation
- the evolution of societal practices and spatial segregation
- the acceleration of worldwide metropolitan transformations

The Advanced Masters programme in urban planning and development offers a multidisciplinary postgraduate training that combines research, professional experience and international exchange within the fields of urban planning and development. It leads to the Advanced Master degree, a qualification approved by France's Conférence des Grandes Écoles.

This full-time, 15-month course, provides a training for planning professionals. The programme prepares future planners to work at different scales of the modern city. It offers a close alliance of intellectual analysis, methodological exploration, project implementation and acquisition of the skills essential for a career in urban planning.

The AMUR Advanced Masters programme is affiliated to the APERAU network, a French association for the assessment of planning and development courses.

Programme:

A varied and progressive 5-stage programme

The programme offers a balanced package of coursework, seminars and workshops, each with an international dimension.

In addition, **two research trips** in Europe and abroad are included in the programme, student trips, when students have the opportunity *to observe* the implementation of situations and original solutions in specific regions.

- An introductory sequence, ending with a research trip to a European city.
- 3 successive sessions of 10-week each are based around coursework, seminars and workshops, with contributions and lectures by French and foreign professionals that highlight different aspects of urban development practice and project work.
    - classes in different disciplines on the fundamentals of each topic,
    - short or long seminars, intensive and interactive sessions focusing on a specific theme, with an emphasis on a spatial and territorial approach
    - a workshop focusing on the concrete relationship to the land and space

as well as on the natural and built forms. The workshop is an opportunity to learn about the conception of planning strategies and territorial projects.

The end of course project, a full-time, 6 month assignment within a multidisciplinary team under the guidance of a director of studies and with the support of resource teachers. This assignment is part of a project on planning and development issues, mainly in Île de France. It is carried out in close collaboration with the partner organisation and its experts.

Courses
Introductory sequence (7 September to 23 September 2015)

- 20th century urban theories and movements: Dominique ROUILLARD
- Organisation of local authorities and agent strategies: Serge AGUILAR
- Cities, large infrastructures and hubs: Nathalie ROSEAU
- European study trip (Anvers): 21 to 23 September 2015

Sequences 1 and 2 (24 September 2015 to 19 February 2016)
Courses

Sequence 1

- Land use planning: Jean-Jacques CHEVALIER
- Urban planning law and regional planning - module 1: Brigitte PHEMOLANT

Sequence 2

- Cities, territories and technologies 19th-21st centuries: Antoine PICON
- Urban planning law and operational planning - module 2: Brigitte PHEMOLANT
- Economics of planning: Marie-Odile FARINEAU
- Urban areas and social practices : Serge WEBER
- Planning in English - module 1 - Rhoda McGRAW

Lecture cycle

- Economic activity and territory: Gilles CRAGUE

Seminars

- Large-scale planning: Claude PRELORENZO

Workshops

- Metropolitan workshop : Jacques-Joseph BRAC DE LA PERRIERE: Nicolas FÉVRIER
- “From intention to representation, using IT in urban planning": Mathieu VOISIN

- Seminar : Contemporary urbanism : Nicolas FEVRIER

Sequence 3 (23 February to 31 May 2015)
Courses

- Public action and urban planning : Daniel BEHAR
- Sustainable development and land use: Lydie LAIGLE
- Project Communications: Corinne KALFON
- Planning in English - module 2 : Rhoda McGRAW

Workshop

- International workshop: PARIS-TOKYO with research trip and *in situ* workshop - Claude PRELORENZO & Nathalie ROSEAU

End of course project (June to December 2016)

Duration: 15 months

Aimed at: The programme is for professionals with an experience in planning, students with a Masters degree or equivalent foreign qualification (architecture, law, economics, geography, history, engineering, landscape, sociology, political sciences) and for engineering students at École des Ponts ParisTech

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Entry requirements: Students are selected on the basis of their application forms and an oral interview
Number of places: 20-25. For foreign applicants who are not French native speaker, a very good knowledge of French is essential.

Learning and teaching methodologies:
A varied and progressive and interdisciplinary programme, alternating classwork, seminars, workshops, visits and research trips, and at the end of course a project on a real, concrete planning issue.
International exposure through courses, seminars and workshops that emphasise international models and comparisons, especially with regard to the big global urban development issues.

Fees: 2015 enrolment fees: €8,250 (including travel costs*, no salary is paid for the end of course project).

More information: http://www.enpc.fr/en/node/8635

MSc in Advanced Landscape and Urbanism (University of Greenwich- UK)

Description:
The MSc Advanced Landscape and Urbanism encourages students to develop inventive and speculative approaches to the design of cities, landscape and territories. It promotes distinct design and research methods and the integration of new and innovative technologies to explore the complexity of contemporary cities, including issues of urban growth, climate change, globalisation and social inequality. The programme is designed for students of architecture, landscape architecture, design and related disciplines, who wish to enhance their academic, intellectual and professional skills.

The programme interrogates the growing influence of landscape processes on the design of future cities and environments. It provides a platform from which to rethink approaches to contemporary urban design, to consider extreme environmental events, shifting economic agendas, new forms of public space and the transformations to urban infrastructures. The MSc Advanced Landscape and Urbanism focuses on design studio projects informed by classes in landscape and urbanism theory, design ecologies, future representation and design research methodologies. Details of international events, open lectures and student work can be found on: www.thelandscape.org/

Graduates from the MSc Advanced Landscape and Urbanism join or establish leading design practice or continue their design and research ambitions through PhD studies.

The aims of the programme are to:

- Interrogate, and speculate on, the emerging ecologies between people, design, technology and the environment
- Research the conditions of urbanism through the lens of landscape theory and design practice
- Employ advanced design techniques and innovative methodologies through site-based projects.

This programme is suitable for those aiming to develop advanced design skills, for use in landscape, architecture and urban design practice, and for those aiming to enhance their academic skills and/or go on to doctoral study.

Programme:
Students are required to study the following compulsory courses.

Landscape and Urbanism Theory (40 credits)
Advanced Urban Design (40 credits)
Design Ecologies (20 credits)
Design Research Methodologies (20 credits)
Future Representations (20 credits)

Master Project (40 credits)
Duration: 1 year
Aimed at: The programme is designed for students of architecture, landscape architecture, design and related disciplines, who wish to enhance their academic, intellectual and professional skills.
Entry requirements: Applicants should have a first class or upper second class undergraduate degree in architecture, landscape architecture, engineering, planning or related discipline. Exceptionally, applicants from geography, ecology and social sciences will also be considered. All applicants must submit a design or project portfolio and a personal statement. Applicants educated in a language other than English should have an IELTS score of 6.5 or above, or an equivalent rating in another language testing system.
Learning and teaching methodologies: Students are assessed through coursework, thesis and design portfolio.
Fees: Faculty of Architecture, Computing and Humanities £8,00, £1,330
More information: http://www2.gre.ac.uk/study/courses/pg/arc/advlandurb

Advanced Urbanism Studio: Urban Spaces of the City 6.0 credits (KTH Royal Institute of Technology- Sweden)

Description:

The Studio is a part of three studio project series and it is the Advanced Urban Studio, preceded by the Nordic Studio - Urban Public Places and followed by the International Studio. The aim for all three studios is to foresee urban planning and design issues and problems that will be coming into the public focus in the near future.

After completing the studio-course requirements, students should be able to fully comprehend and understand how timeless city quality and urbanity can be understood and applied in new humanistic oriented approach to city planning and building. Also the students will identify the main elements and principles of an inclusive urban design as well as the relation of history of urban form to contemporary discussion on retroffiting, repairing and redesigning city quarters, public spaces and neighborhood units. Finally the students will be able to develop their ideas, thoughts and critical reflections within a unique given content and culture of the advanced studio. This in turn will encourage and offer a broad range of views and perspectives to create a fruitful learning environment where new ideas and visions will grow and develop. The studio addresses significant contemporary issues such as urbanity, mixed-use, real estate dynamics and variety, adaptive housing, and democracy, justic and equality. The studio contributes skills and tools needed to design, problematize, synthesize, communicate, and collaborate.

Programme:
An intensive design studio introducing students to a glocal issues focusing on complex elements of the public realm with attention to the urban fabric as a generator of social life in public places; the program modules (2 and 3) will provide the basis for the content that is needed to accomplish this studio. Students work in small groups/gilds to produce an urban design project with a specific proposal to a selected urban issue addressing a complex reality, social, economic, environmental, or cultural. The context and the project task is “glocal”, i.e. Swedish or -and, European based but at the same time addressing similar problems and challenges globally. The project advances the idea of learning from history of urban form and creating contemporary urbanism that is of "cityism" - city like qualities and character, dynamic and kinetic, of a livable community feel and democratically inclusive place, and of high urbanity where the public realm, squares, streets, quarters and public life play a pivotal role in shaping and composing the spatial form.

Duration: This course is part of the International Master of Science Program in Urbanism Studies, 60 credits at KTH - Royal Institute of Technology and can only be taken as part of that program, i.e. one has to apply for the full One Year Program at KTH.

Aimed at: Graduate students. This course is not open to international exchange students.
Entry requirements: Three years of studies in urban planning, regional development, architecture, urban sociology, human geography, physical and town planning, urban design or similiar together with AG2186.
Learning and teaching methodologies: Tailor made lectures, textbased seminars, exercise based seminars, study visits, tutorial, project pin ups and final critic sessions with invited professionals.
Fees: No information available
More information: http://www.kth.se/student/kurser/kurs/AG2187?l=en

Advanced Master of Science in Urbanism and Strategic Planning (MaUSP- KU Leuven, Belgium)

Description:

The Master of Urbanism and Strategic Planning (MaUSP) is a 4 semester professional degree. It is an internationally orientated program that addresses critical understanding of contemporary conditions of cities and urban regions. Its aim is to develop innovative concepts and strategies for qualitative interventions in the urban realm through design, planning and policies.

The master program prepares students for leadership roles in urban design, urban development and management, and strategic planning with a special focus European-wide urban issues.

The aim of the programme is to deliver graduates who are able to work in a critical and independent way in the discipline. They should be able to create workable spaces which structurally influence the complex developments in the field of urban and regional planning.

Students choose for an option of Urbanism (with a focus on urban design) or an option of Strategic Planning (with a focus on strategic spatial planning).

By the end of the programme the student will have acquired:

- knowledge of diverse contexts of urbanization, in Europe and the world
- knowledge of working at various levels of scale, with an ability to explain the interference between these levels of scale
- design methods that are supported by a thorough analysis of the spatial phenomena dominating contemporary urbanization, and an understanding of the social forces underlying these phenomena
- the ability to intervene in a strategic project which is politically and economically feasible, and which exercises a structuring effect that transcends its direct impact
- skill in designing spatial interventions and strategies
- skill in achieving a critical view of society's spatial functioning
- sound communicative skills
- the knowledge and skills required to participate in scholarly research

The MaUSP program is linked to the European Masters of Urbanism (EMU), and students have the option to participate semesters two and/or three abroad at one of the partner universities UPC Barcelona, TU Delft or IUAV Venezia, in order to obtain the additional certificate European Masters in Urbanism. Students enrolling in the European

Masters of Urbanism program are obliged to graduate with a design-oriented thesis and are given their final degree by the hosting university where semesters one and four are completed.

Programme:

All the following courses are compulsory.

Studio Concepts and Analysis
Theory and Practice of Urbanism since 1945
Relevant Practice & Introduction to Research Methods & Study Trip
Strategic Spatial Planning
Relevant Practice and Study Trip
Studio Urban Design and Planning
Project Development and Management
Landscape Architecture
Urban Design Strategies

Students have to choose between Spatial Planning and Urbanism

Spatial planning compulsory courses:

Human Settlements in Development
Studio Strategic Spatial Planning
Critical Review of Sustainable Development Policies and Planning
Institutional Aspects of Spatial Planning

Urbanism compulsory courses:

Studio Urbanism
Landscape Urbanism

Optional courses:
Students have to choose courses from the list below up to at least 120 credits.

6 ECTS	Modernity and the Architecture of the City
4 ECTS	Urban Studies: Research Methodology, part 1
4 ECTS	Human Settlements in Development
4 ECTS	Design of Infrastructure
3 ECTS	Geomatics for Urbanism and Spatial Planning
4 ECTS	Independent Study
4 ECTS	Modernity and the Architecture of the City
4 ECTS	Economic and Sustainability Aspects of Architectural and Urban Design
5 ECTS	Urban Anthropology

3 ECTS	Critical Review of Sustainable Development Policies and Planning
4 ECTS	Project Management: Building Economics and Cost Control
3 ECTS	Landscape Urbanism
3 ECTS	Mobility & Transport
3 ECTS	Urban Ecology
3 ECTS	Project Evaluation & Effect Assessment
3 ECTS	Institutional Aspects of Spatial Planning
3 ECTS	Colonial & Postcolonial Urbanism
3 ECTS	Urban Studies: Research Methodology, part 2
4 ECTS	Independent Study
5 ECTS	Cultural Anthropology: Material Culture
3 ECTS	Conservation of Architectural Heritage: History, Theory and Practice

Duration: 4 semesters (2 years)

Aimed at: Graduate students (with minimum 5 (exceptionally 4) years of university education) in Architecture, Civil Engineering, Urban/Physical Planning with a good academic record (normal level of 70%, or GPA 2.8/3.0, second class upper). The relevance of the academic record will be compared for each university and/or country of origin. Applicants with relevant professional experience will be preferred.

Entry requirements: Have a good command of English, certified by a score on a language test: TOEFL (Computer-based test 213 pt., Internet-based test 79 - 80 pt., Paper-based test 550 pt.) or IELTS (6.5 pt.) Candidates who can prove that their entire university education was taken in English can be exempted from this requirement. (See also the KU Leuven Language proficiency guidelines)
Submit a letter of motivation and preferably a portfolio which clearly demonstrates sound professional intentions and relevant experience.
Submit one or two recommendation letters to support the application, preferably from you current employer

Learning and teaching methodologies:

Fees: Tuition fee will amount to 6000 Euro per academic year. An additional yearly cost for fieldwork and study trips (non-compulsory but in function of the optional courses and design studio's chosen) of maximum 600 Euro will be asked for.

More information: http://eng.kuleuven.be/arch/onderwijs/mausp

Master of advanced studies urban design (Swiss Federal Institute of Technology ETH, Zurich)

Description:

The Master of Advanced Studies in Urban Design ETH is a research and design laboratory for testing new models for the pro-active development of emerging territories within today's rapidly-urbanizing world.

As the making of the city is increasingly fractured by competing interests the development of new modes of urban production becomes a prerequisite for considered action.

The MAS in Urban Design produces a new generation of design professionals–one equipped to deal with topics beyond the discipline.

The MAS UD is a postgraduate program within the Departement of Architecture at ETH Zurich. The full facilities of the faculty–including dedicated studio space, model-making workrooms, digital fabrication labs, and printing facilities–are at the disposal of MAS program participants.

Programme:

The MAS in Urban Design is a one-year postgraduate master's program in research and design. Study is structured around an investigation of urban conditions as they pertain to global phenomena and the development of practical tools for operating within such domains. As global economics rapidly reshape urban conditions–at a speed seemingly beyond the control of planning–the pace of urbanization has rendered nearly impossible the formal absorption of populations. Despite all efforts to provide low-cost housing through formal markets, some third of the world's total urban population lives in inadequate conditions. In this vacuum, self-organization and autoconstruction have proven efficient coping strategies for low-income households. The MAS program focuses on these areas as a dominant way of making the city today, redefining the role of the design professional while seeking new territories for design to engage.

The MAS program seeks design professionals interested in the investigation and development of tools for use in regions largely beyond the control of planning. A culture of inquiry within the studio encourages the development of strong outlooks on the development of urban scenarios. Emphasis is put on method, incremental design, and tools of communication with the aim of preparing participants for interdisciplinary work within design offices, academic teams, or municipal agencies.

Design and Research Laboratory

After 2 cycles of investigation in Ethiopia and Brazil – this year program is focusing on

another exemplary context for the design and research of urbanization in developping territories: Cairo, Egypt.
In addition to the studio forming the central component of the course, fieldwork, a theory seminar, workshops with municipal actors and experts, and the production of a publication provide a wide introduction to the multiple facets of contemporary urban design. These core classes provide the requisite number of credits (600 hours, 65 ECTS credits) necessary for graduation.

Design and research

The studio that forms the main component of the course, divided into two semesters, takes a site as the foundation for both research and design proposals. Engagement with communities, urban actors, and municipal planning authorities in the location provides insight into the possibilities and challenges of urban design within a culture of dispersed and opposing agendas and decision-making power.

Within this framework, the MAS program is exploring the three themes of Resistance/Relevance/Resilience and conducts a reflection towards a defiant repositioning of the discipline of architecture and a radical interpretation of what is urban design.

Resistance: The MAS program is investigating the operational tools and design strategies available to the profession of architecture at the scale of the built environment and urban territory, and the current maneuvering room for resistance within the discipline.

Relevance: With the idea to re-radicalize the design field, the program's goal is in to generate urban design tactics that should reposition architecture as a relevant and central method to making the city.

Resilience: Addressing the challenges of the profession faced by forces of urbanization, resilience is a theme to be explored not as the over worn concept of sustainability but as a framework for an ethical, social, political practice of architecture and urban design.

Fieldwork

An excursion related to studio research is conducted midway through the program's first semester. On-site research for the studio project, visits to other relevant areas, and meetings with municipal and community organizations provide sufficient understanding of the context in which studio production will operate.

Urban Mutations on the Edge – seminar and public lecture series

The UME seminar is a series of weekly lectures by invited guests on topics in urban research and phenomena in territories that are beyond the traditional realm of architectural discourse. The objective here is a comprehensive understanding of urban

research's nature and capacities. Participants will leave the course with both an understanding of current urban research issues and the tools to conduct such research themselves. Within the framework of this seminar, MAS participants are asked to produce two publication-quality essays related to their production within the studio. The production of the papers refines academic writing skills and familiarizes participants with research methods. In the past, the papers produced have been published both alongside the studio work and in independent architectural journals.
Duration: 12 months
Aimed at: The MAS program is well suited to participants with a strong interest in design and emerging urban conditions. Admission is open to individuals who have earned a five-year professional degree (Arch ETH, master's degree, or equivalent) in architecture or a related field from an accredited institution.
Entry requirements: Candidates must provide evidence of their creativity and design talent by means of a project portfolio. The selection should include academic and professional design work edited to convey the personal outlook of the applicant. It should be bound into a format no larger than A3 size. Applicants are asked not to send digital portfolios or loose sheets. Portfolios should be sent directly to the chair. The chair will keep the portfolios of matriculating students. If you would like your portfolio returned to you, please include a self-addressed stamped envelope with the submission.
Learning and teaching methodologies: Inquiry based learning and studios
Fees: 15.000 CHF (including costs of main excursion)
More information: http://www.angelil.arch.ethz.ch/?g=gen85ab590d95472a04dcfe5f9b2bd0b075

Other institutions offereing advanced urbanism

MIT Center for Advanced Urbanism

The Center for Advanced Urbanism (CAU) provides a home for faculty interested in collaborative research projects that will engage student participation. CAU is the umbrella for various existing research laboratories and faculty projects. It organizes collaborations between these labs and other MIT groups in order to foster a cross-disciplinary expertise.

Urban environments are being planned, designed, constructed, and retrofitted at an unprecedented pace and scale, which often precludes a rational, thoughtful process. Global economic forces have eclipsed standard paradigms of post-World War II urban expansion and ideas of incremental urban development. New megacities are being built all over the world in record time and often without standard protocols or procedures of the established design and urban planning professions. Pressing cultural and environmental concerns are demanding new levels of accountability as we measure ecological performance, energy use, mobility and density relationships, and the deployment of dwindling resources. These and other factors challenge the intelligence and efficacy of new urbanization forms and existing conventions and typologies for development. We have entered into a new era or urban growth whereby the rules have changed and paradigms of urbanism desperately need recalibration to meet today's global challenges.

Center's objective is to become the world's pre-eminent cultural center about the design of metropolitan environments, by articulating methods and projects to integrate separate disciplinary agendas in architecture, landscape, ecology, transportation engineering, politics and political philosophy, technology and real estate through a most eloquent design culture on scales ranging from the complex infrastructural intersection, to that of a neighborhood, on to the scale of an entire regional system.

Research Areas

- **Climate + Urbanism:** This research area revolves around understanding the increased risks and vulnerabilities of cities due to climate change, especially in highly populated, coastal areas. From this understanding comes the core mission of designing new templates for adaptation and for protective infrastructures as well as potential relocation strategies and environmental design.
- **Environment + Urbanism:** This research area addresses urban environmental issues and their impacts on the future of the city, including: food, water, urban health, biodiversity, landscape performance, pollution and toxicity, building health, resource consumption, waste management, and more. The goal of this research is to design and develop more sustainable outcomes for cities to reduce dependence on limited natural resources and make cities healthier for all.
- **Global + Urbanism:** This area of research is specifically targeted at unique global contexts that require new models for urbanism. Global + Urbanism research is place-dependent and can vary widely based on geographic context, recognizing that urban form, protocols, and practices are radically different

depending on institutional processes. No single solution can be universally applied to solve urban problems or create solutions in industrialized and developing world contexts. With the global urban world expecting rapid growth to 2050, Global + Urban research asks what new urban models can be implemented to disrupt paradigms of city-making.

- **Technology + Urbanism:** The focus of this research area is testing the long-term consequences, benefits, and second-order effects of new technologies as they are implemented in neighborhoods and across metropolitan areas. Technologies include building systems, big data, and smart cities (the internet of things). Scenarios primarily test the impacts of technology primarily on urban form and space but also considers the socio-economic and cultural consequences of introducing new technologies.

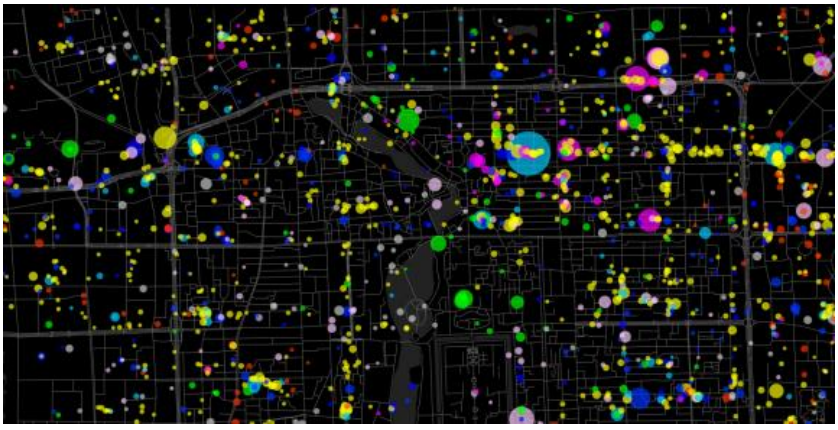
Affiliated Labs

The Center for Advanced Urbanism (CAU) provides a home for faculty interested in collaborative research projects that will engage student participation. CAU is the umbrella for various existing research laboratories and faculty projects. It organizes collaborations between these labs and other MIT groups in order to foster a cross-disciplinary expertise.

City Science Initiative

City Science is a research group at the Media Lab focused on intelligent, sustainable buildings, mobility systems, and cities. It explores the application of new technologies to enable urban energy efficiency and sustainability as well as enhanced opportunity, equity, and cultural creativity. The group is particularly concerned with the emerging roles of networked intelligence in fabrication and construction, urban mobility, building design and intelligently responsive operation, and in public space. The research takes a broadly multidisciplinary approach, not constrained by traditional boundaries.

Civic Data Design Lab



The Civic Data Design Lab works with data to understand it for Public Good. We seek to develop alternative practices which can make the work we do with data and images richer, smarter, more relevant, and more responsive to the needs and interested of citizens traditionally on the margins of policy development. In this practice we experiment with and develop data visualization and collection tools that allow us to highlight urban phenomenon. Our methods borrow from the traditions of science and design by using spatial analytics to expose patterns and communicating those results, through design, to new audiences.

Housing & Community Lab

The Housing & Community Lab was established in 2006 to invent new models of city form and function to accommodate the hyper-rapid urbanization ongoing in Asia without sacrificing livability. Originally established in China more than 20 years ago as an iteration of the Beijing Urban Design Studio–a joint program between MIT's School of Architecture + Planning and Tsinghua University–the Housing & Community Lab program expanded to India with a workshop and design studio in the southern town of Erode: subsequent studios were set in the Mumbai Metropolitan Region. Landscape and Urbanism: Around the Bay of Mumbai, a recent publication, summarizes this work.
Adèle Naudé Santos and faculty from SA+P

LOCUS-Lab

LOCUS-Lab (Low Carbon Urban Systems) is a design and research group interested in how cities and their associated systems respond to the demands of climate change through low carbon development. The Lab has recently developed projects that research the adaptive transformation of unsustainable urban communities; mapping the complexities of urban metrics for urban sustainability; and developing urban infrastructural responses to sea level rise and climate change. LOCUS-Lab is also strategically engaged in the Health + Urbanism project in collaboration with the AIA and CGI.

Mobility Systems

Mobility Systems is a cross-cutting research and education initiative in DUSP, which takes an integrative trans-disciplinary approach, aiming to better understand the fundamental relationships between mobility and the built and social environments, and using that knowledge to create sustainable systems. We have a multi-scale perspective - designing and developing interventions for neighborhoods, cities, regions, and mega-regions – and work globally to derive practical mobility innovations. We are currently involved in several large-scale, multi-year research projects, including Future Urban Mobility, as part of the Singapore-MIT Alliance for Research and Technology (SMART), and the Bus Rapid Transit Center of Excellence.

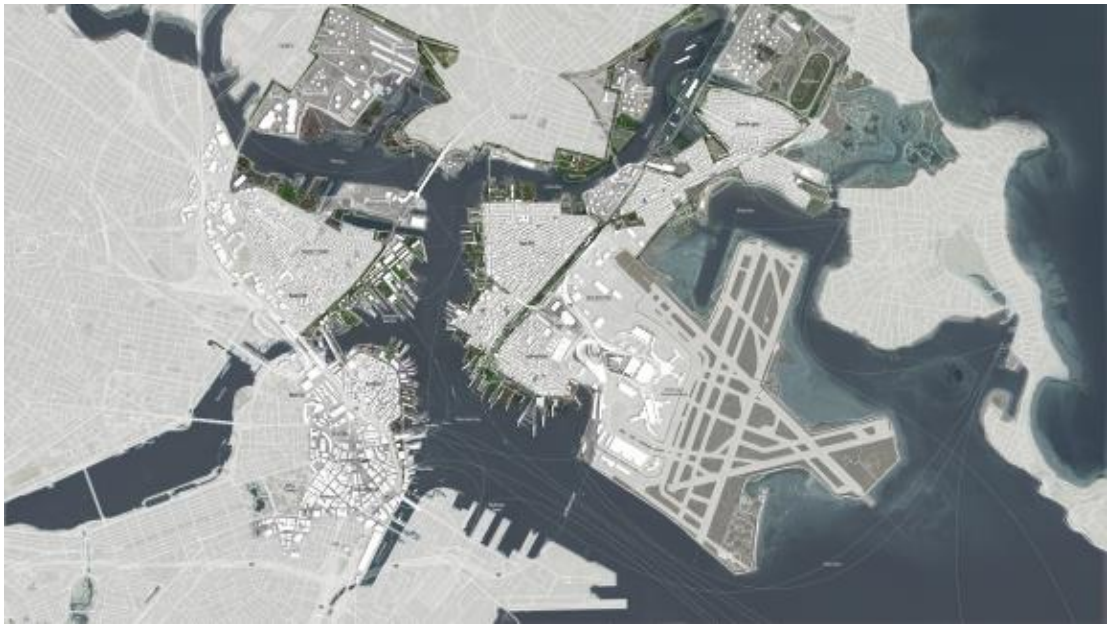
Nepf Environmental Fluid Mechanics Lab

The Nepf Environmental Fluid Mechanics Lab explores the physical mechanisms that shape shallow water ecosystems, such as rivers, wetlands, and coastal zones, with a particular emphasis on vegetated systems. These ecosystems provide important services, including flood control, water quality improvement, habitat and coastal protection. Because of these services, efforts to restore vegetated ecosystems are accelerating around the world. At the same time, many cities and states are adopting managed wetlands to provide storm and waste water treatment with additional ecological benefits. However, the design of wetlands and sustainable restoration requires an understanding of the feedbacks between vegetation and flow structure. The goal of the Nepf Lab is to provide the physical understanding, from the blade scale to the reach scale, that is needed to restore and harness these valuable ecosystems.

New Century Cities

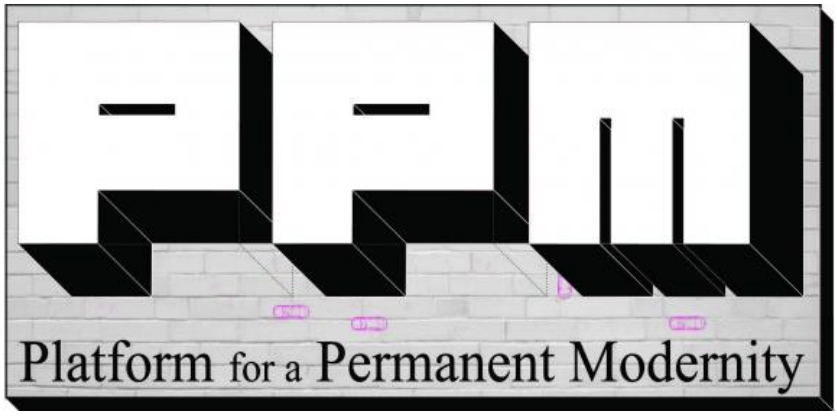
The New Century Cities is a joint research project among the Center for Real Estate, the City Design and Development Program, and the Smart Cities Group in the Media Lab that focuses on a new generation of very large scale development projects located at the intersection of technology, urban design, and real estate development.

P-REX



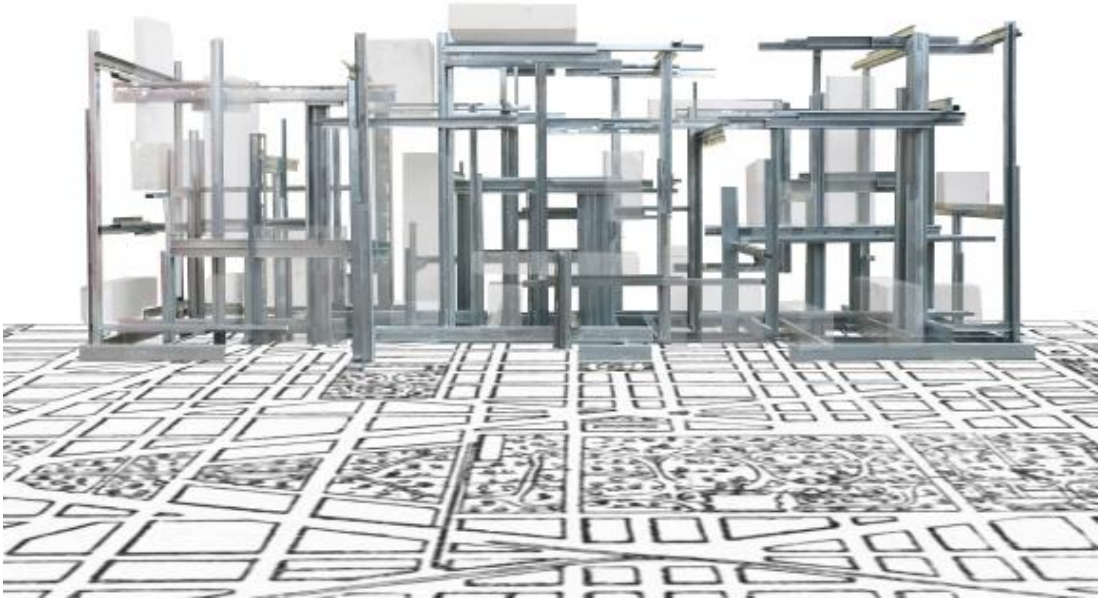
P-REX is a groundbreaking design research lab developing non-traditional design solutions to push the boundaries of conventional practice and incorporate resilient thinking into large-scale strategic planning & design.

Platform for a Permanent Modernity



Platform for a Permanent Modernity is a research group for design and theoretical investigations into ideal forms of contemporary urbanism; at the moment they are performing a long-term study on Greater New York; each year they chart another part of the city with the aim of compiling a blueprint for the entire metropolitan area.

POPlab

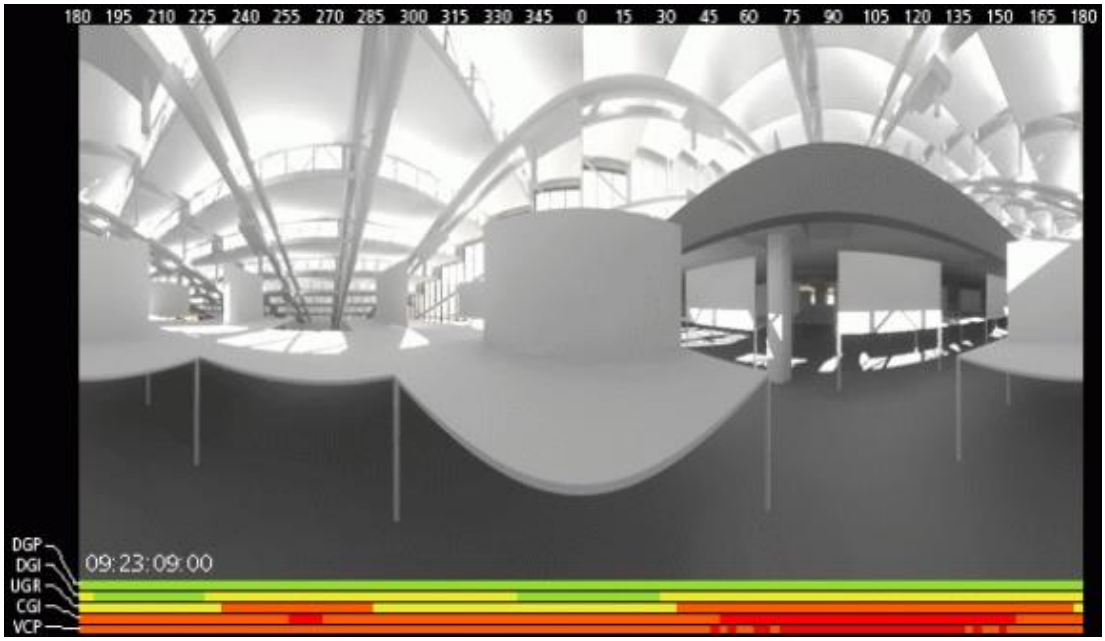


The POPlab (Prototypes of Prefabrication Laboratory) is a research laboratory established in 2012 to innovate the design and construction of our built environment, bridging the gap between science and art. From the scale of the building to the scale of the city, new typologies and construction systems are developed, implementing the logic of prefabrication to produce spaces thought for their users: functional and economic, efficient and innovative; poetic and real. Currently the lab is working on a series of urban prototypes, Supraextructures, which explore the active hybridization of architecture and infrastructure for a more vital construction and experience of the city.

Resilient Cities Housing Initiative

The Resilient Cities Housing Initiative (RCHI), directed by Professor Lawrence Vale, explores the role of shelter and settlement design in withstanding the 21st century environmental and security challenges of an urbanized and urbanizing world. At its core, RCHI investigates the challenges of developing and redeveloping the housing environments of the least advantaged dwellers in a city-region. In this context, the effort to design and sustain housing is about far more than the appearance of that housing; it is about the contested politics of its siting, programing, financing, policy, and integration with larger urban networks and the public realm. RCHI supports integrated scholarship, cross-disciplinary curriculum development, and innovative practice that bring together housing design, housing policy, urban design, environmental and energy policy, real estate development, new media technologies, and the visual arts.

Sustainable Design Lab



The Sustainable Design Lab's mission is to produce high quality fundamental and applied research that facilitates the design of resource-efficient and comfortable environments at the building and neighborhood scale. Our goal is to change current architectural practice by developing, validating and testing design workflows and performance metrics that lead to improved design solutions as far as occupant comfort and building energy use are concerned. The premise of our work is that a more informed design process will lead to better design choices and ultimately better performing buildings.

Urban Risk Lab

Operating as designers at the intersection of disaster management and risk engineering, hurricanes and earthquakes, ecology and infrastructure, rural and urban, research and action, the Urban Risk Lab is a cross-disciplinary organization of researchers and designers at the Massachusetts Institute of Technology addressing the most challenging aspects of contemporary urbanization. The Urban Risk Lab is a place to research and innovate on technologies, techniques, materials, processes, and systems to reduce risk. We develop methods to embed risk reduction and preparedness into the design of the regions, cities and everyday urban spaces to increase the resilience of local communities.

For further details visit: http://cau.mit.edu