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SEMINAR ENERGETIC METROPOLIS

TEACHERS
INGRID TAILLANDIER / ANDREI FERARU

BRIEF COURSE DESCRIPTION

As we know, the actual metropolis and countries under development are facing massive needs of new dwellings and new cities. China, Arabic peninsula, India, among many others are building new cities within short delay. Sometimes with high density and high rise typology of buildings. While Europe is skeptical about this model due to some obvious failure of new cities from the 70's, others countries prefer to count on new cities rather than expanding existing ones. The question of cities dealing with water is also an interesting theme to study, due to environmental issues. The seminar approach on that matter is to compare new cities, cities on water and buildings of high density through out history.

The question is how can we compare theoretical backgrounds, data, urban design of cities (historical ones, utopian ones as well as contemporary ones)? Which methodology of analysis can we apply to such different cases, different contexts and diverse populations?

Density, F.A.R., green space, population, infrastructures as well as technical devices and needs will be analyzed with an environmental approach.

Based on last year analysis, students will extend the research and will rely on theory.

CONTENT

Readings of theoretical text on city planning.
Research on graphic representation for readable and comparable documents.
Lectures on the theme of energetic metropolis.

REQUIREMENTS

Analysis of on 3 themes (new cities, cities on water, High rise buildings) : one theme for each group of 4 students.
Render with common graphic rules for the group and common comparison scales.
Preparation of a book and an exhibition.

HOURS
55

PROJECT METROPOLIS INVISIBLE

TEACHERS
MATTHIAS ARMENGAUD / AUGUSTIN CORNET /
INGRID TAILLANDIER /

BRIEF COURSE DESCRIPTION

Question : "what place for this time?"

A Thursday night, in the "Grand Paris", more than 3 million people are working. For whom ? How ? Where ? In which space ? We consider the "Grand Paris" as a territory where the invisibles can be revealed. By studying, discovering, and physically practicing it, materials for projects will come up. This semester in a special format aim in 3 stages project, aesthetic actions leading to research and back to design. Students will be invited in a didactic way, to discover the invisible part of the city, the instable part of the buildings. The aim is to focus their attention on understanding the dimensions of time and scale, variable perception of the territory through mobility mode, articulations and consequently speed, slowness : in planification and architecture equally.

For instance, by exploring the night, students will understand the dimensions of time and scale through the prism of a precise assignment. The aim will be to propose a full-scale intervention, by taking the night over to highlight actuality and potentiality of the site.

CONTENT

Your task will be the following:

- "Instant" planning:** collective and interdisciplinary workshop to "re" design Paris at night.
- Territorial reconfiguration:** "Guide plan" of an urban mobility district: at the heart of an existant neighbourhood which slowly changes, we will describe a prefiguration process in evolution on 15 years before the "real project". The matter will be to define what is permanent, unstable and to articulate economic, temporal, cultural strategies so a narrative could emerge: plot stories as much as stage-design.
- Architecture: "Bumper":** to develop a built intensity, an architectural project as the strategic icon of a neighbourhood mutation. A built event which could irradiate on and magnet the city and the uses around.

HOURS
112

SEMESTRE 1

MASTER THESIS RESEARCH METHODS

TEACHERS
NICOLAS PHAM

BRIEF COURSE DESCRIPTION

The academic community usually recognizes two types of research:

The scientific research and the analytical research. Scientific fundamental research is intended to demonstrate a hypothesis considered within a disciplinary field, mathematics, physics, astronomy, biology, etc.

It is led through a selection process in order to obtain an accurate result defined beforehand and conducted accordingly to protocols that demonstrate the relevance and rigour in the selection of indicators.

The purpose of analytical research on the other hand is rather to be exhaustive, opening fields of knowledge and opportunities. It also proceeds on terms and indicators defined by a normative framework and references.

A third research field though, philosophic, artistic, architectural still proceeds in an other way, by iterations in a system that sets its aim as to define its internal logic and simultaneously its own critique.

The fields of architecture and urbanism borrow partly to Exact Sciences, notably for structural aspects, partly to Human Sciences for its insertion within culture and the question of use for instance.

In this course, we will specify and define the conditions of scientific and analytical research from within the modalities of our own architectural and urban discipline.

CONTENT

Seminars on research methods and protocols.
Research on written content, graphic representation and layout.

REQUIREMENTS

Elaboration of a personal dissertation from referential texts.
Control of the ability of the student to formulate goals, thinking tools and methods.
Control of the ability to state relevant societal themes and problematics that find their application within the fields of architecture and urbanism.

HOURS
25

THEORY OF ECOLOGY BUILDING PHYSICS AND ENVIRONMENTAL DESIGN

TEACHERS
JULIEN BOITARD

BRIEF COURSE DESCRIPTION

The construction industry is responsible for the intensive use of energy both directly, in the creation of buildings and infrastructure, and indirectly, in the operational phase. As well as the carbon dioxide which is produced, a variety of other pollution is caused by construction processes and buildings in use.

Thoughtful planning and design can have a major impact on reducing energy use and pollution over a building's entire lifetime, specially when considered at the early stages of the design process

This course consists in teaching the basics in building physics and environmental design. It aims more particularly in identifying the number of sustainable solutions which can provide environmental benefits as well as financial savings.

CONTENT

Lecture 01 : Introduction
Lecture 02 : Green Urbanism
Lecture 03 : Basics of Building Physics
Lecture 04 : Bioclimatic Architecture & Solar Passive Design
Lecture 05 : Active Systems & Renewable Energy
Lecture 06 : Natural Light Design & Artificial Lighting
Lecture 07 : Environmental Design Softwares
Lecture 08 : Exercises

REQUIREMENTS

3 series of small exercises based on the lectures already given, to be done by students between 2 lectures and then corrected in classes.

HOURS
16

THEORY OF URBANISM READINGS #1

TEACHERS
AUGUSTIN CORNET

BRIEF COURSE DESCRIPTION

Contemporary metropolitan expansion has led to extremely complex urban phenomenon. Looking at cities evolution in the XXth century, we have to keep in mind that XXI st century's urban mutation is likely to be equally extreme. The very concept of city has become difficult to grasp and the question of a project is equally uncertain.

This course proposes to explore 200 years of history of European cities through readings of a series of key theoretical texts, trying to grasp the evolution of the very notion of city and gathering tools that will help us better understand the way we can invent an appropriate way of intervening into contemporary urban complexity.

CONTENT

Readings of theoretical texts on city planning.

REQUIREMENTS

Each student will have to study a book, read a passage and expose it's point of view in a debate.

HOURS
25

MASTER THESIS RESEARCH METHODS

TEACHERS
EMILIE GASCON

BRIEF COURSE DESCRIPTION

Analyse and problematise.

Investigations on water cities theory and practice.

One of the main components of any research work is analysis. Analysis capacities are keystones to build a research problem and conduct a scientific inquiry. But appropriated analyses are also fundamental when talking about designing an architectural, urban or territorial project. Especially true when these projects are in the complex territorial context of floodable or water-based cities.

Taking the occasion of the long-term project of the double master's seminar -of investigating water cities problematic and cities case studies- the course "analyse and problematise" constitutes an introduction to research practices. It aims at introducing the main principles, logics and rules of a research work under the perspective of a practical application. First since it offers tools for academic writing. Second since it creates bridges between research methods and design processes.

CONTENT

Lectures on the:

- logic and principles of a research work;
- rules of academic writing;
- operationalisation of a research work on a case study
- tools for the analyse of architectural, urban or territorial projects.

REQUIREMENTS

In accordance to the seminar Water Cities, students will have to formalise under academic rules the previous students' works 24+1 and 12++ water cities.

Students will also have to organise and realise the analyse of an architectural, urban or territorial project attached to the water-based cities' issues.

HOURS
25

SEMESTRE 2

SEMINAR ENERGETIC METROPOLIS

TEACHERS
INGRID TAILLANDIER / ANDREI FERARU

BRIEF COURSE DESCRIPTION

Based on the 1st semester analysis, students will develop their subjects of master thesis.

How can our students explore and analyze new ideas for building cities with an aim to call for more radical thinking in the face of environmental crisis?

We believe that post-oil cities can not avoid ecological concern.

This Master on Ecological Urbanism will therefore focus on few themes (among them the 3 themes from the 1st semester : new cities, cities on water and density).

The thesis which is due next year in Tongji must be directly linked to a future project of Diploma. This is why we ask students to question their subject to be able to rely on it for their design process.

CONTENT

Presentation of research thesis from former years.

Research on graphic representation for readable and comparable documents.

Lectures on the theme of energetic metropolis.

REQUIREMENTS

Presentation every 2 weeks of the evolution of 6 thesis subjects, bibliography and graphics contents.

Render with common graphic rules and scales for documents meant to be compared.

Summary of thesis subject based on Tongji Requirements.

HOURS
55

PROJECT DENSITY AND METROPOLIS / SOFT HARDWARE FOR GROWING DISPARATIES

TEACHERS
KLAAS DE RYCKE / ANDREAS KOFLER

BRIEF COURSE DESCRIPTION

The city as we know it is the result of several different approaches, influences, fluctuations and environments. We can talk about old and new cities (history). We can imagine compact and sparse cities (density). We can discuss Western and Eastern cities (geography). We can think of globalised and secluded cities (infrastructure), etc... Ignoring the fact whether they are growing or declining, what they all have in common is that they rely on the capabilities of their "foundations". Cities consist of streets, plazas, gutters, light, (clean) air... These parameters can be defined and controlled. The planning of a city is a technical endeavour. As urban planners and architects we are used to focus on the built environment, on what is over ground, as this is probably the best perspective when aiming to produce liveable areas. At the same time cities are increasingly planned by (public) administrations or (private) corporations, ultimately collecting ever more data in order to have a "smart" response on issues such as waste water treatment, air quality, use, transportation, security... The latent absence of architects in the process risks to lead towards increasingly technocratic responses in city planning. In order to reverse this course we need to start understanding the tools, parameters and languages of the contemporary modi operandi. The best way to achieve this seems to be through learning-by-doing. In the context of our studio, several protagonists of these themes will explain the different approaches and planning parameters of their work and studies, the data that helps them developing strategies to encounter the future challenges of the city.

CONTENT

Students will apply those different approaches on their studies and proposals, with the aim to develop a set of rules and algorithms around these three themes:

1. New cities; growth and decline
2. Technology and resilience
3. The internet of things (IoT), datasourcing.

HOURS
112

SEMESTRE 2

SEMINAR

TOWARDS A METEOROLOGICAL ARCHITECTURE

TEACHERS

PHILIPPE RAHM

BRIEF COURSE DESCRIPTION

Climate change is forcing us to rethink architecture radically, to shift our focus away from a purely visual and functional approach towards one that is more sensitive, more attentive to the invisible, climate-related aspects of space. Slipping from the solid to the void, from the visible to the invisible, from metric composition to thermal composition, architecture as meteorology opens up additional, more sensual, more variable dimensions in which limits fade away and solids evaporate. The task is no longer to build images and functions but to open up climates and interpretations. At the large scale, meteorological architecture explores the atmospheric and poetic potential of new construction techniques for ventilation, heating, dual-flow air renewal and insulation. At the microscopic level, it plumbs novel domains of perception through skin contact, smell and hormones. Between the infinitely small of the physiological and the infinitely vast of the meteorological, architecture must build sensual exchanges between body and space and invent new aesthetical approaches capable of making long-term changes to the form and the way we will inhabit buildings tomorrow.

CONTENT

Our studio propose to each student to develop a project at the scale of a building which will be located for each of them in a particular French terroir. The goal is to design architecture by inventing a new material and thermodynamic language which resources and production methods come from the physical, chemical and organic specification of a precise geology and climate.

Each student of the School of Architecture of Versailles will be associated during the semester with a student of the Graduate School of Design, Harvard University, USA.

REQUIREMENTS

The studio teaches a method for the architectural design based on scientific analyze and personal imagination.

HOURS

32

THEORY OF URBANISM

ARCHITECTURES, CITIES AND METROPOLISES

TEACHERS

DJAMEL KLOUCHE / IDO AVISSAR / ANDREI FERARU

BRIEF COURSE DESCRIPTION

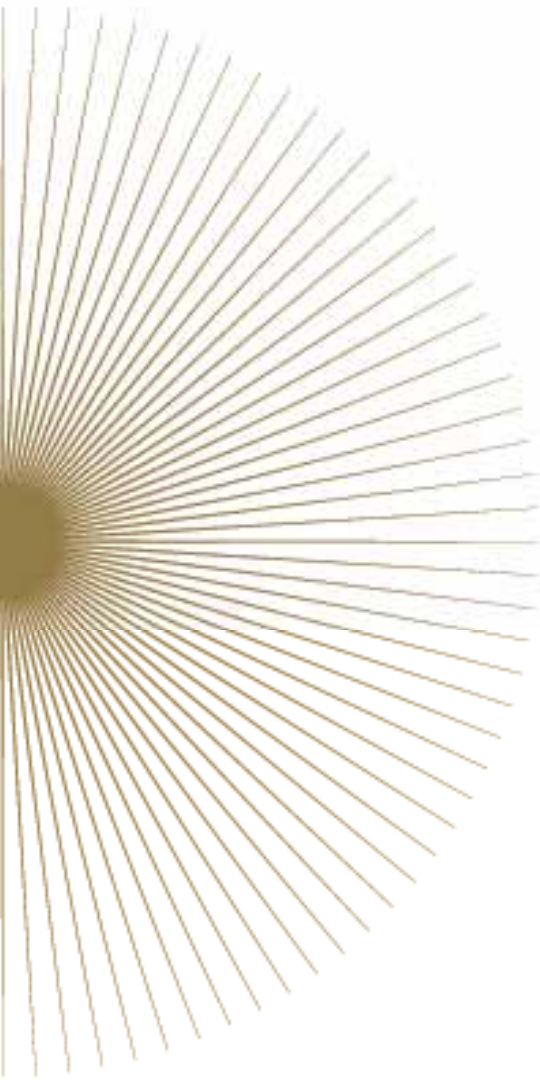
The aim of this teaching organized with lectures during the second semester of the master degree is to build a cultural background regarding the contemporary stakes of the urban society, today.

We select the issues which give to see, to understand, to make emerge fruitful relations which are diffused between the fields of Architecture, Cities and Metropolises.

These relationships could be organized around several thematics: the theories, the different points of view, the scale matter, the governances and of course, the design projects.

HOURS

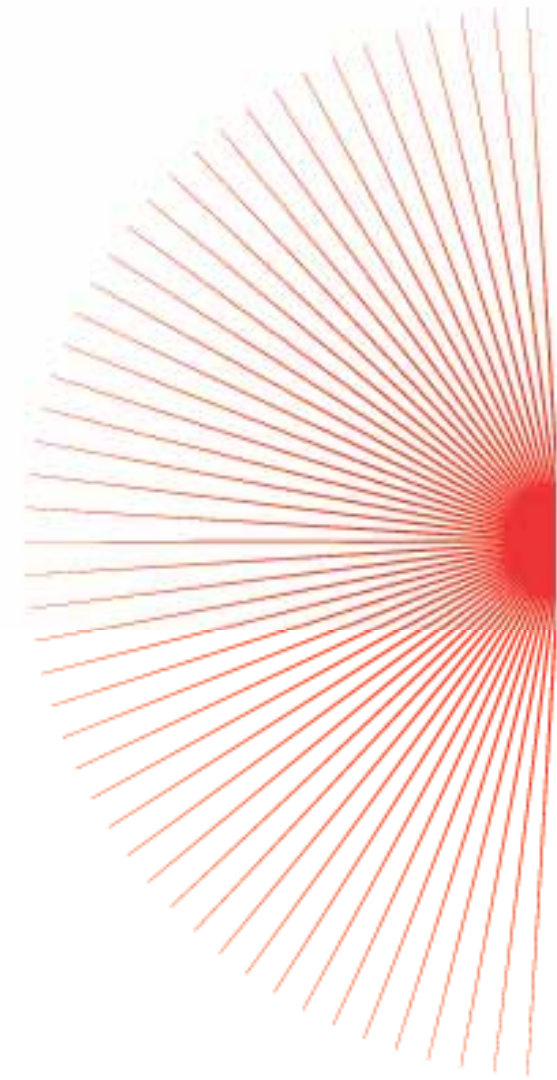
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