Infrastructure Architecture

4.154 Architecture Design Option Studio

Chicago, IL

Studio Instructor: **Julien De Smedt**
Teaching Fellow: **Gabriel Kozlowski**

Syllabus

Julien De Smedt: jds@jdsa.eu
Gabriel Kozlowski: gabrielk@mit.edu

Credit Units: 0-10-11G

Prerequisites: 4.145 or 4.153

Room: 3-415

Open to: MArch students

Course Description:

In the discipline of Information Technology, "architecture" – the space inhabited by users – and "infrastructure"– the systems that enable use – are increasingly being thought of as a single idea. However, in the more tangibly and ideologically entrenched disciplines of architecture, urbanism, and civil engineering, "infrastructure" and "architecture" remain two separate concerns. Just as the information revolution that accompanied the development of the Internet has created new dispersed networks of exchange, collaboration, and efficiency, an emerging energy revolution calls for dispersed networks of self-sufficient energy collection networked together to maximize efficiency. This is one of the most compelling opportunities for addressing the environmental crisis, and re-conceptualizing architecture as infrastructure, to design buildings and cities as integrated systems for collecting and distributing energy.

Chicago finds itself in a strategic moment where three major initiatives that will shape the future of the city have just been launched.

Firstly, Mayor Rahm Emanuel has publicly announced that Chicago aspires to the greenest city in the world. In 2013 the City was nominated the "Earth Hour Climate Leader," and started collaboration with the World Wildlife Fund to develop innovative technology and open data programs to engage its citizens on climate issues. With this year's launch of the "2015 Sustainable Chicago Action Agenda," which sets the key policies and goals for its sustainable development in the coming years, the City reinforces this position, building a solid and fertile ground to achieve its environmental goals.

Secondly, Chicago is the first American city to set up a metropolitan infrastructure bank, the Chicago Infrastructure Trust. The Trust is Chicago's response to Washington's bureaucracy, and intents to give the City autonomy and funds to pursue large-scale infrastructure undertakings by pairing investors with projects.

And finally, the City has recently released a five-year housing plan (2014-2018), Bouncing Back, which dedicates $1.3 billion investment to construct or preserve 41,000 affordable homes.

These measures will have a tremendous impact on the City and its environmental status. However, if not properly planned, all this effort can generate negative outcomes, and this unique opportunity to imagine a new future for the city will have been wasted. This will entirely depend on how development happens.

We will envision a series of projects for Chicago where architecture joins forces with its infrastructural needs to create urban hybrids.

With the premise to address large-scale urban issues with a pragmatic and environmental mind, we will develop research and projects that aim to combine infrastructural needs and architectural outcomes. We will study and design new ways to connect the tremendous efforts and expenses made in the infrastructural sector with the building sector in an attempt to redefine urban development. If infrastructure can literally set the foundation for architecture to occur, we will join the two efforts, and explore ways to densify the urban geography to reach higher levels of efficiency for society. By combining architecture and infrastructure we aim to speculate on new ways the City of Chicago can address its current and future environmental concerns.

Studio Structure:
Studio is divided in two phases. In the first phase, students will engage with analytical and projective research to build understanding about the city's current condition, functioning, form, and future needs. The research phase will define the foundations for the design projects, such as the intervention site, scale, and constraints, and its outcome may be compiled and published as a chapter in the upcoming sequel of JDS Agenda book. In the second phase, students will develop strategies and design projects that weave architecture and infrastructure to propose new development paths for Chicago's future.

Subject Objectives:
- Strengthen the students' ability to research, conceptualize, and develop an understanding of complex urban environments.
- Strengthen the students' ability to conceive and develop an architectural project, as well as communicating it properly through accurate graphic representation.

Deliverables:
- Research booklet: compendium of the studio's research phase.
- Large physical model of the site produced by the studio members collaboratively.
- Physical models of the design projects produced individually.
- Architectural project represented in at least in four scales (city, immediate context, building, and building detail), through compelling visual material (plans, sections, axons, diagrams and renderings are mandatory, yet other means of visualization are also welcome and encouraged).

Grades will not be posted for students to view on their grade report until their work has been archived. The projects need to be properly prepared and formatted, and delivered to the studio instructors. The instructors will collect project archives from each student immediately following the review. Detailed requirements and instructions for formatting will be explained along with the presentation of the exercises.

Schedule

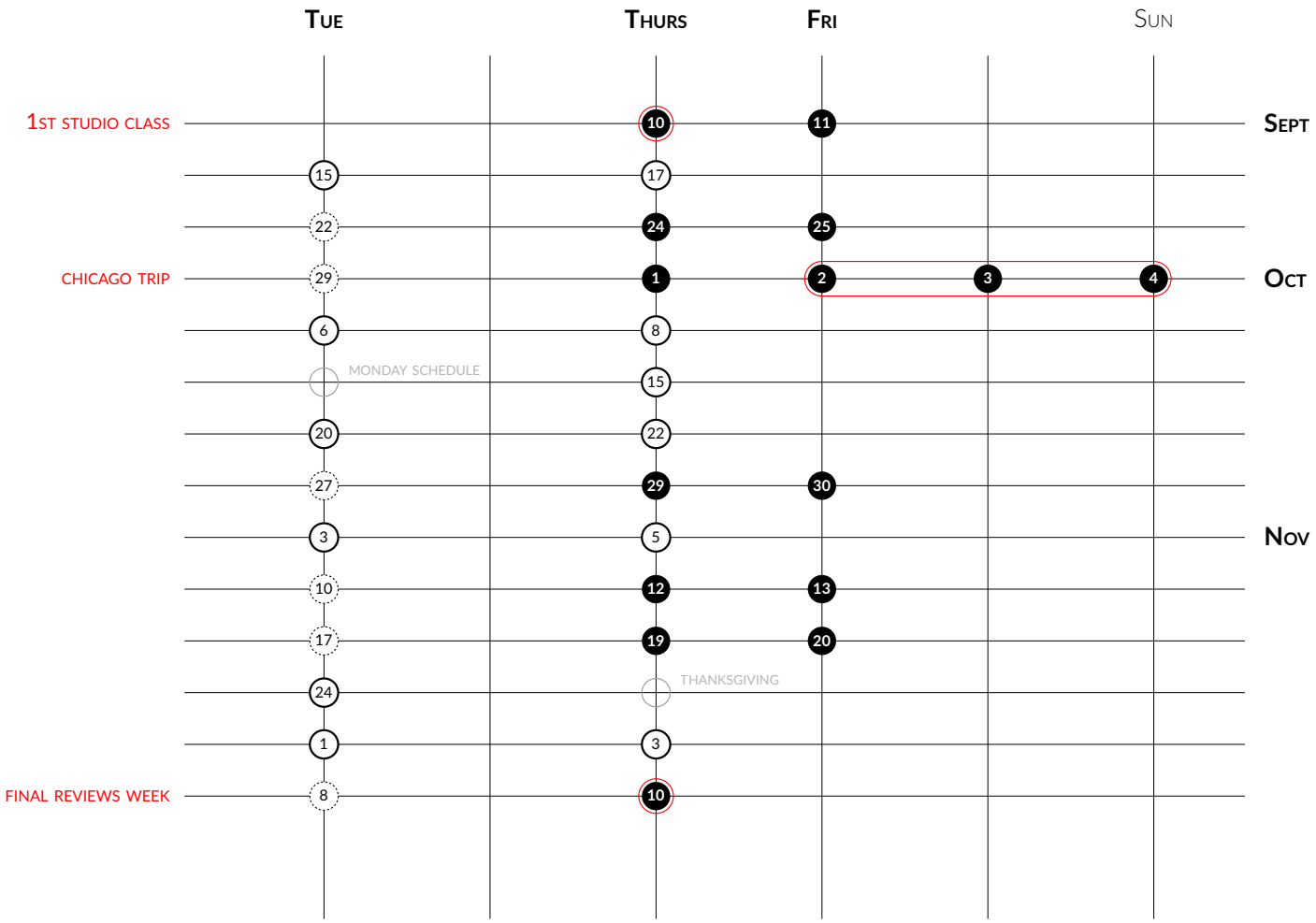
Weeks with Julien

Tuesdays **1**pm **- 3**pm
Thursdays **1**pm **- 6**pm
Fridays **9**am **- 12**pm

Other weeks

Tuesdays **1**pm **- 6**pm
Thursdays **1**pm **- 6**pm

Julien + Gabriel (A)
Gabriel (A)
Gabriel - short meetings (A)



Requirements:
- Attendance is mandatory for all students enrolled in the studio. (Failure to attend the class will affect the final grade)
- Advanced knowledge of graphic representation tools, and 2d and 3d modeling.
- Students need to complete the studio assignments in a timely manner, and to be prepared to discuss and present their ideas.

Evaluation Criteria:
- Attendance: 10%
- Pin ups: 10%
- Research Phase: 15%
- Design Phase: 45%
- Final Presentation: 20%

The grading will consider individual growth over the semester, ability to communicate clearly and objectively, and originality.

Grading Definition:
A - Exceptionally good performance demonstrating a superior understanding of the subject matter, a foundation of extensive knowledge, and a skillful use of concepts, graphic representation, and design thinking. Ability to propose outstanding solutions to problems through design.
B - Good performance demonstrating capacity to use the appropriate concepts, a good understanding of the subject matter, and an ability to handle the problems and materials encountered in the subject. Ability to propose solutions to problems through design.
C - Adequate performance demonstrating an adequate understanding of the subject matter, an ability to handle relatively simple problems, and adequate preparation for moving on to more advanced work in the field.
D - Minimally acceptable performance demonstrating at least partial familiarity with the subject matter and some capacity to deal with relatively simple problems, but also demonstrating deficiencies serious enough to make it inadvisable to proceed further in the field without additional work.
F - Failed. This grade also signifies that the student must repeat the subject to receive credit.

Disabilities:
If you have a documented disability, or any other problem you think may affect your ability to perform in class, please see me early in the semester so that arrangements may be made to accommodate you. For MIT's policy on accommodations for disabilities, please follow this link http://mit.edu/uaap/sds/students/

Academic Integrity + Honesty:
MIT's expectations and policies regarding academic integrity should be read carefully and adhered to diligently: http://integrity.mit.edu

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