



ioud - Institute of Urban Design

EM2 825188: >>Garbage city<<

Hybrid infrastructural elements for new urban tissues in El Cairo

UIBK Summer Semester 24

Instructors: José Carlos López Cervantes/ Cynthia Sánchez Morales

Course meetings: Wednesdays 9:00 am



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Video presentation: <https://www.youtube.com/watch?v=xmeGN3fd0fY>

This video has been made using artificial intelligence based on the available information of Zabbaleen based on Manshiyat Naser neighborhood in Cairo.

CONTENT:

Course abstract:

Manshiyat Naser is a neighborhood of Cairo, Egypt. It covers 5.54 square kilometers, home to 262,050 people. It is famous for the Garbage City quarter which is a slum settlement at the far southern end. Being Cairo's largest concentration of Zabbaleen -garbage collectors-, around 40.000, its economy revolves around the collection and recycling of the city's garbage. Over 66% of this garbage is being recycled in Cairo which has an estimated cost of 14 million dollars.

All these circumstances created a very peculiar landscape where tons of garbage are being collected, stored, classified and recycled in a very dense urban scenario. There are no public services or infrastructures. Hygienic and social conditions are deficient. But in the middle of all this chaos there is a very clear Modernist mass production system emerging, reinforced concrete structures, they host all this amalgam of events.

In such conditions, architecture is being reduced to the essence. Perhaps for this very reason it is often used Le Corbusier's Dom-Ino system as structural prototype for mass production. An archetype in its most primitive state which creates a whole new urban scape created through variations and aggregations of itself.

This studio will explore the possibility of using Artificial intelligent as a design tool to test design speculations on the Dom-Ino diagram to trigger the debate over new typological, formal and tectonic configurations capable of hosting that specific casuistic of Manshiyat Naser. A new hybrid which foresees the programmatic mixture of infrastructure, housing, and recycling.



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Course methodology:

"AI" is becoming a prominent premise on the current architectural debate. The aim is to explore the possibilities of implementing AI as a valid tool to produce disciplinary knowledge, in this case a design methodology in an academic environment.

>AI as a tool: AI is becoming a relevant topic in the current architectural debate. It appeared as a powerful tool to test arguments in a quick visual manner. Most of the platforms at our disposal are image generation tools that take inputs through text prompts and parameters and use a Machine Learning (ML) algorithm trained on a large amount of image data to produce unique images. Thus, in the "creativity/production" equation, quantity and computational speed are becoming important factors. Even further, assuming the fact that our imagination is 95% built out of the images we have archived in our memory, one could argue that counting with an immense archive or endless number of images would be a beneficial scenario in a creative environment. The challenge here is how to navigate between "algorithm driven mash-up images" and "unconscious design knowledge", which requires certain training.

This course will be an Advanced Architectural Design studio which examines the connection between conceptual understanding of design and form generation through digital design techniques. Essential knowledge will be acquired by software modeling and critical current discourse on the discipline. Students will be instructed in theory and simultaneously they will be equipped with digital techniques of design and representation.

The course will be divided into three blocks. Each of them will last four weeks and it will contain theory and design tasks. These three design tasks will reflect over three main levels of understanding: conceptual, procedural and practical; each of them connected to a canonical concept of our discipline:

- BLOCK 1. CONCEPTUAL KNOWLEDGE. ABSTRACTING LOCAL MORPHOLOGIES. DOM-INO, TYPOLOGICAL OR TOPOLOGICAL PROBLEM?

Students will have to identify and model Dom-Ino variations. There will be a problem of abstraction vs literality; how much abstraction is needed in order to read the different morphologies as geometries without reducing too much their specific qualities.

- BLOCK 2. PROCEDURAL KNOWLEDGE. DOM-INO AS A SYSTEM. CREATING A NEW URBAN TISSUE.

Students will formulate associative arguments using Artificial intelligent as a design tool. A critical analysis of the result is expected because this transdisciplinary approach will have to formulate new formal conditions, new coherencies, and new assemblies in architecture.

- BLOCK 3. PRACTICAL KNOWLEDGE. DOM-INO TECTONICS. THE DEFINITION OF SEMANTICS.

From conceptual to disciplinary objects. Students will investigate the qualities that give meaning to the diagrammatic design such as materiality and contextual conditions. The implementation of a urban model into an area of the city of Cairo will be the final task.



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The design task will be to create a portion of the urban tissue. Students will have to develop an area of 500 m long by 400 m wide.

Course Structure & Organization

Students will work individually. Each session will contain a theoretical lesson, deskcrits and specific software tutorials needed for developing the project. Progress will be reviewed weekly at the studio.

NEEDS:

Material Requirements:

Students need to bring their own laptops. Software will be accessible through educational licenses.

Tools and Techniques:

In order to apply this specific methodology, students will be instructed in specific software. No previous experience of the software will be required.

Final Deliverables & Requirements & Assessment (OLAT):

Complete graphic description of the project is expected, including visualizations, drawings, diagrams, research material, and any kind of visual information that support the entire comprehension of it.

SUBMISSION

Grading Procedures:

Grades are determined based on the quality of work produced, progress and improvement over the course of the semester, completion of project requirements, quality of participation, attendance, attitude, and ethical conduct. Grading policies will be discussed during the first weeks of the studio, and any questions regarding grades or policies should be directed to the instructors. A passing grade in the course requires committed completion of all projects, including the institute archive in proper formats. Incomplete work will not be evaluated until the submission is completed. A failing grade is given whenever cumulative work, final work, and/or attendance are unsatisfactory. It is also given when a student fails to submit a final project or fails to take a final examination without prior approval from the instructor.

Academic Integrity:

The integrity of the work of individuals is first and foremost a grading milestone. Student work that delivers the ideas or words of others as the student's own adversely impacts the whole faculty. Academic dishonesty, including cheating, plagiarism, commissioning academic work by others, or performing academic work on behalf of another student, is strictly prohibited and would result in a negative grade.

Plagiarism:

This includes but is not limited to; copying words, images, or other material from a source without using appropriate citation rules such as quotation marks, footnotes, references, or other indications of the original source, paraphrasing another person's ideas in your own words without crediting the original source, taking sole credit for assignments without giving credit to those who worked with you, submitting work for a course that has already/also been submitted for another course or internet plagiarism, such as submitting work either found or paid for online, failing to cite any internet sources used, or cutting and pasting sentences from various websites to create a collage of uncited words.

Incomplete Work & Extension of time:

A student may receive a negative grade or no grade when the work is incomplete at the evaluation date by the end of the semester. By requesting permission from the instructor in good time prior to the date of the final examination or presentation, this can be avoided. Permission will be granted only under extraordinary circumstances and usually for medical reasons, requiring a medical document proving the situation. Incompleteness must be fulfilled to the instructor's satisfaction no later than two weeks after the end of the term.

Archiving:

Students are required to submit physical examples of their work or digital examples no later than one week after the end of the term to their instructors or administration for archiving. This is a chance for students to have their work displayed or exhibited online and potentially featured in future institute publications or research projects. The instructors will provide a document titled the Einwilligungsformular that allows the institute to keep track of the agreement; if you wish not to permit this archival material to be published, please contact the institute secretary in good time.

Learning Policy (Studios and Seminars):

Attendance is mandatory at critiques, pin-ups, and reviews. If you do not present your work regularly, you will not receive a passing grade for the course. Students must have all required work related to the course during course hours (not at another location or other time). Students should not use course time to leave school to procure materials, run errands, etc. All activities that require one to be away should be scheduled to occur outside of course hours. Leaving in the middle of or before the end of regularly scheduled course times will result in an absence unless discussed with the instructors. Grades will be determined by the quality of work produced, an improvement over the course of the semester, completion of project requirements, quality of participation, and attendance.

All electronic recordings, image captures/screenshots (during zoom meetings), or audio recordings are strictly prohibited unless agreed upon or discussed beforehand with the instructors and participants.