Istanbul Technical University – Department of Architecture

# MIM 351E – Architectural Design V, 21926

Course Syllabus | 2020-2021 Spring Term

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| Course Day and Hour: Monday/Thursday 13:30-17:30 | Course Instructor: Asst. Prof. Dr. Sevil Yazıcı |
| Course Location: Zoom Online | e-mail: sevilyazici@itu.edu.tr |
| Course Credits: 5 | Office No: 225 (office/contact hours: Monday 10.30-12.30) |

## Project Studio Description

The question of performance is rooted in the form and function dialectic. Architects are mainly divided into two distinct parts in this discussion. While the formal approach tends to focus on artistic aspects of design and the discrete architectural object, the functional one is generally associated with science and, more specifically, with engineering and optimization (Hensel and Sørensen, 2014*). How can these two distinct aspects inform architectural design equally? The design process can be described as optimization, in which the architect prioritizes some parameters according to their importance in the design process. The aim of the Architectural Design Studio V is to question *analysis, design and optimization processes* in architectural design from multi-faceted perspectives. How can parameters related to the form, material, performance and construction/fabrication can inform the architectural design process integrally? The studio participants of MIM 351E are expected to identify critical parameters influencing their design processes.

The studio will focus on the task of generating a Design, Science and Technology Hub (DeSciT-Hub) in an urban context. Site selection is a subject to be investigated by the studio participants based on their local residency. The proposed building is going to serve as a local hub, in order to accommodate DeSciT activities, share knowledge, exhibit products and/or provide experiences. The functional program should be interpreted by individual students.

**Michael U. Hensel and Søren S. Sørensen, Intersecting Knowledge Fields and Integrating Data-Driven Computational Design en Route to Performance-Oriented and Intensely Local Architectures, Dynamics of Data-Driven Design, Autumn 2014, pp. 59-74.*

## Project Studio Structure and Plan

The methodology obtains two stages including analysis and design development. The methods and techniques include various types of representation, computation and analysis media, including diagramming, physical modelling, two dimensional (2D) drawings, three dimensional (3D) geometric modelling, algorithmic design and performance analysis.

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| **analysis** | site<br>connectivity<br>environmental conditions<br>architectural identity<br>functional program<br>space organization<br>performance criteria |
| **design development** | material systems<br>structural systems<br>construction/fabrication/making<br>building sub-systems |
| **methods and techniques /** representation, computation, analysis | diagrams<br>sketches<br>animations/ videos<br>physical models<br>prototypes<br>2D drawings<br>3D geometric models<br>visualizations/ renders<br>algorithmic design<br>simulation |

**Course Plan** (flexible content, changes may occur)

| Week | Date | Topic |
|---|---|---|
| **1st week** | 01.03.2021 | Introduction to the course content and requirements |
| | 04.03.2021 | Seeing, reading, mapping and analysis |
| **2nd week** | 08.03.2021 | Site investigations, connectivity, architectural identity, environmental conditions |
| | 11.03.2021 | Site analysis and interpretation |
| **3rd week** | 15.03.2021 | Evaluation of findings, presentations and synthesis |
| | 18.03.2021 | Functional program requirements |
| **4th week** | 22.03.2021 | Space organization |
| | 25.03.2021 | Performance criteria in architectural design |
| **5th week** | 29.03.2021 | Algorithmic design |
| | 01.04.2021 | Concept development |
| **6th week** | 05.04.2021 | Concept development |
| | 08.04.2021 | **1st Jury** |
| **7th week** | 12.04.2021 | Material systems |
| | 15.04.2021 | Project development and critique |
| **8th week** | 19.04.2021 | Structural systems |
| | 22.04.2021 | Project development and critique |
| **9th week** | 26.04.2021 | Construction/fabrication/making |
| | 29.04.2021 | Project development and critique |
| **10th week** | 03.05.2021 | Building sub-systems |
| | 06.05.2021 | Project development / critique |
| **11th week** | 10.05.2021 | Project development / critique |
| | 13.05.2021 | **2nd Jury** |
| **12th week** | 17.05.2021 | Project development / critique |
| | 20.05.2021 | Project development / critique |
| **13th week** | 24.05.2021 | Project development / critique |
| | 27.05.2021 | Project development / critique |
| **14th week** | 31.05.2021 | Project development / critique |
| | 03.06.2021 | Project development / critique |
| **15th week** | 07.06.2021 | Project development / critique |
| | 10.06.2021 | **End of the term: 3rd Jury** |
| | To be announced | Final submission |

## Recommended Readings


- Burry, J. and Burry, M. 2010. The New Mathematics of Architecture, Thames and Hudson.
- Colquhoun, A. 1995. Essays in Architectural Criticism, the MIT Press.
- Ford, E. R. 2011. Architectural Detail, Princeton Architectural Press.
- Garcia, M. 2010. The Diagrams of Architecture, AD, Reader, Wiley.
- Klanten, R.and Feireiss, L. 2011. Utopia Forever: Visions of Architecture and Urbanism, Gestalten.
- Kolarevic, B. and Klinger, K. 2008. Manufacturing Material Effects: Rethinking Design and Making in Architecture, Routledge, Taylor & Francis Group.
- Menges, A. and Ahlquist, S. 2011. Computational Design Thinking, John Wiley and Sons, UK.
- Menges, A. and Knippers (2020). Architecture Research Building: ICD/ITKE 2010-2020, Birkhäuser.
- Oxman R. and Oxman R. (2014). Theories of the Digital in Architecture Routledge, Taylor & Francis Group, London.
- Spiller, N., 2007. Visionary Architecture: Blueprints of the Modern Imagination, Thames & Hudson.
- Zumthor, P. 2005. Thinking Architecture Birkhauser.


## Project Studio Assessment

The projects for the studio critiques and juries should be uploaded to the Ninova and specified cloud-based folder latest by 10.30 am on Monday's and Thursday's. Participations to the studios are critical.

Studio critiques during the project studio course times and jury evaluation will be provided to the students. A mid-term grade will be announced during the term based on the assessments.

The assessment is based on the criteria below:

- Originality.
- Conceptual depth and development of the design project.
- Providing sufficient solutions for architectural problems related to the context, program, space organization, building systems.
- Quality of technical representation and models of the projects.
- Active participation to the project studios and juries.

During the term: 40%
End of the term: 60%

## Contributors

Contributors will take part in the studio for seminars/workshops and/or jury sessions. They will be announced during the term.

## Expected Learning Outcomes

- To develop solutions for multi-dimensional design problems in the urban context.
- To assess social and cultural layers of architecture.
- To discuss the relationship of design with location, context, space, identity and representation.
- To use digital design methods and tools in the process creatively.
- To be able to use different types of media and representation techniques.
- To use sustainable design principles in the process.
- To assess form, material, structure and construction/fabrication as a holistic system.
- To design flexible spaces, able to respond changes by time.
- To propose innovative and original design solutions.
- To assess and solve accessibility in the design project
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## Jury and Submission Dates

08.04.2021 (1st Jury)
13.05.2021 (2nd Jury)
10.06.2021 (3rdJury)
Final submission (date and time to be announced)

Additionally, in class presentations and assignments will be undertaken by the students during the term.

## Deliverables of the Final Jury / Submission

The required digital materials for the juries and courses should be uploaded to the Ninova and/or cloud-based studio folder before the specified dates and times. Late submissions will not be accepted. Final submission date and time will be announced later during the term.

- Diagrams
- Sketches
- Site analyses
- Site plans: 1/500; 1/1000
- Silhouettes: 1/500; 1/1000 or 1/2000
- Floor plans: 1/200
- Sections: 1/200
- Elevations: 1/200
- 2D detail drawings: 1/20 or 1/50
- Site model: 1/500
- Physical models; 1/500 and 1/200
- Prototypes; 1/5; 1/10; 1/20 or 1/50
- 3D geometric model
- Axonometric perspectives
- Visualizations/renders
- Simulations
- Video or animations, if necessary.

- Final posters in A1 size
- Portfolio booklet in A3 size
- Exhibition posters in A3 size
- Web site exhibition layouts
- All digital drawing and model files
- Architectural report

## Communication Methods

Communication methods of the course include Ninova learning management system, Zoom video platform, content sharing platform at cloud and collaborative digital workspace.

## Course Management

- Attendance is obligatory. Medical excuses of students should be approved by university authorities.
- The submissions need to be done on the announced dates and times. The evaluation of the course is based on 3 Juries / submissions, 1 Final submission, presentations and participation to the project studios.
- Any of scholastic dishonesty, included but not limited to cheating, plagiarizing, fabricating information or citations, facilitating acts of dishonesty by others, submitting work of another person or tampering with the academic work of other students, is a serious academic violation and will result in a disciplinary action.
- The syllabus is subject to change due to unexpected circumstances, which may arise during the course. Students will be notified prior to any changes.