

## COMMUTE

Connectivity-Mobility-Transportation

ARCH 401(Studio VII)

ARCH 301 (Studio V)

(Section 1+2)

*Commute is a design studio, seeks to create a resilient transportation System, which is Environment respecting, preserving heritage and Identity through developing feasible architectural designs for transportation terminals, inspired by Local bio life (biomimicry) and Local Forms and materials.*

**CONTENT /** The rapid transformation in developing countries focus on designing systems which modernize cities and make their facilities and services resilient in the face of modern needs. In Turkiye, one of these plans is the rapid expansion in transportation infrastructure, including highways and railways networks that **connects** the different cities in Turkiye, and with the neighbouring countries in the region, in an easy, comfortable and fast way enabling the **mobility** of millions of passengers and goods along the year.



Motorways map in Turkiye 2024

These **transportation** infrastructures include not only the roads and railway lines, but the control and quality buildings, safety and administrative management buildings, social activity spaces beside the train stations and intercity bus terminals.

There are many design competitions announced yearly for the architectural design of these transportation hubs, looking for the best ideas to design modern, cost efficient, energy efficient, and environmentally sustainable for the new bus terminals and train stations.

This studio seeks to **learn How to design such buildings** taking in consideration the general criteria of:

- **Scale:** Is it a small, regional terminal or a major transportation hub?
- **Purpose:** Primarily passenger or freight?
- **Location:** Urban, suburban, or rural?
- **Existing infrastructure:** Are there any nearby buildings or connections to consider?
- **Budget:** What is the financial limit for the project?

While paying extra attention for the special technical consideration of designing stations and terminals, such as:

- **Security and safety:** Implement measures to ensure the safety of passengers and staff.
- **Balance between functionality and aesthetics:** Ensure the station is both efficient and visually appealing.
- **Integration with the surrounding environment:** Respect the identity and preserve the local heritage of the Urban centre.
- **Sustainability features:** Environmental, Energy, Cultural, and economic sustainability.



High speed train network map in Turkiye

#### AIMS

**Studio V** Designing an intercity bus terminal in a small or medium size city,

**Studio VII** Designing a train station for high-speed trains in a small or medium size city

**Goals:** Learning biomimetic architectural design being inspired by Local BIO life for the design of the envelop and structural system, Using Local materials and traditional methods and styles by:

- Learning Biomimicry concept and how to use it in design.
- Learning how to design the structural system and envelop of the building as a base for architectural design.
- Understanding the traditional structural systems and how to be inspired by them for contemporary design .



The new high speed Yerköy train station opened 23 August 2024

## **METHOD /**

### How to COMMUTE during this studio work:

After the presentation day, and if you choose to work in this studio ( V or VII) we will choose one of the available towns where there are planned projects for terminals and stations. **Either in Georgia (Tbilisi or Batumi) or the 4 available towns on Yerkoy- Kayseri new train line (Şefahtli, Yenifakılı, Himmetdede, Kayseri)** and define each students of studio the project he/she will design (Students of studio V the intercity bus terminal and students of studio VII the train station).

The phases to be followed throughout the process are given below.

### **Phase 1: Research and Analysis**

- Site analysis (Analyze the context of the chosen project, by understanding the site, environment, tradition, culture... )
- Existing infrastructure assessment
- User needs and preferences
- Regulatory requirements **which will lead you to define the required square meters areas of the functions and spaces required in the design program** which will be assigned to you after choosing the location.

### **Phase 2: Conceptual Design (Biomimicry method)**

Which will be held as an **online workshop with UOU students** on Fridays 11 and 18 October, Each student will work to collect information about the Bio life in their chosen area. Define possible local animals/

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plants to be the source of the concept to design the structural system using the reference of local materials and traditional systems to create a resilient structural and construction system for the station/ terminal building

- Schematic design: start designing the structural system (**Structure as Architecture**) by defining its components and elements,
- Layout options: Design the project architecturally by distributing the functions and spaces of the station/ terminal using the structural system as the base of the design.
- Material exploration
- Sustainability strategies

### Phase 3: Detailed Design

- Architectural drawings
- Structural engineering
- Landscape design

Present the concept and the design of the system via a story board (free technique).

### **Learning Outcomes:**

- 1- Design standards for accessibility and circulation in transportation facilities
- 2- Concept of Biomimicry design in architecture,
- 3- How structural systems design can define and affect architectural design,
- 4- How to reflect the dynamic heritage of the area, and preserve the context protecting its Identity
- 5- Different presentation techniques of the design ideas.

### **DELIVERABLES:**

Plans, sections, 1/100, sketches and renders posters of Portraits A2 size.  
3D Physical model of the structural system + VR accessible 3D model of the architectural design.

**EVALUATION /** The design should respond to the following requirements:

Biomimetically inspired?

Does it use the Local Materials??

Does it reflect the identity of the region??

Are the architectural spaces and functions of the station correctly distributed??

Does it enable future expansion??

Level of innovation???

### **Grading:**

Quiz of Biomimetic design 10%

Workshop UOU online 20%

Midterm Jury 20%

Final Jury 50%

**Important Note:** (This Studio contents/ facilities/ functions and grading scale are subject to modification through the studio time according to the progress and interaction of the students.)

### **Bibliography /**

- Structure as Architecture (Andrew Charleson )
- Resilient Structures and Infrastructure (Ehsan Noroozinejad Farsangi)
- Biomimetic Architecture and Its Role in Developing Sustainable, Regenerative, and Livable Cities (Mohsen Aboulnaga , Samaa E. Helmy)
- Biomimetics In Architecture: Architecture of Life and Buildings (Petra Gruber)
- Rural resilience as a new development concept (Wim J.M. Heijman)
- VerSus Project: Heritage for Tomorrow, Vernacular Knowledge for Sustainable Architecture.

### **Ankara Yildirim Beyazit University (Turkiye) /**

Salah HAJISMAIL (salah.hajismail@aybu.edu.tr)

Ahmet Emre DİNÇER (aedincer@aybu.edu.tr)

Sena TÜRE (sena.ture@aybu.edu.tr)