HENGERMALOM INTERNATIONAL

INTERDISCIPLINARY PROJECT BASED DESIGN
2025/2026 I.

BME | FACULTY OF ARCHITECTURE | DEPARTMENT OF BUILDING CONSTRUCTION | Department of Explorative Architecture

CONTENT

COURSE DATA, CONTACTS

COURSE NAME

Interdisciplinary, Project based Design F (BMEEPTCEP01)

TUTORS

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SCHEDULE, MAIN DATES

classes: Tuesdays, 08:15-16:00 and Thursdays, 08:15-16:00

first class: 09 September, 2025 (1st academic week)
last class and presentation: 21 October, 2025. (7th academic week)

COLLABORATING PARTNERS

Építész Stúdió Kft. / www.epstudio.hu
Város és Folyó Egyesület / www.valyo.hu

TOPIC

CLIMATE CHANGE AND ARCHITECTURE

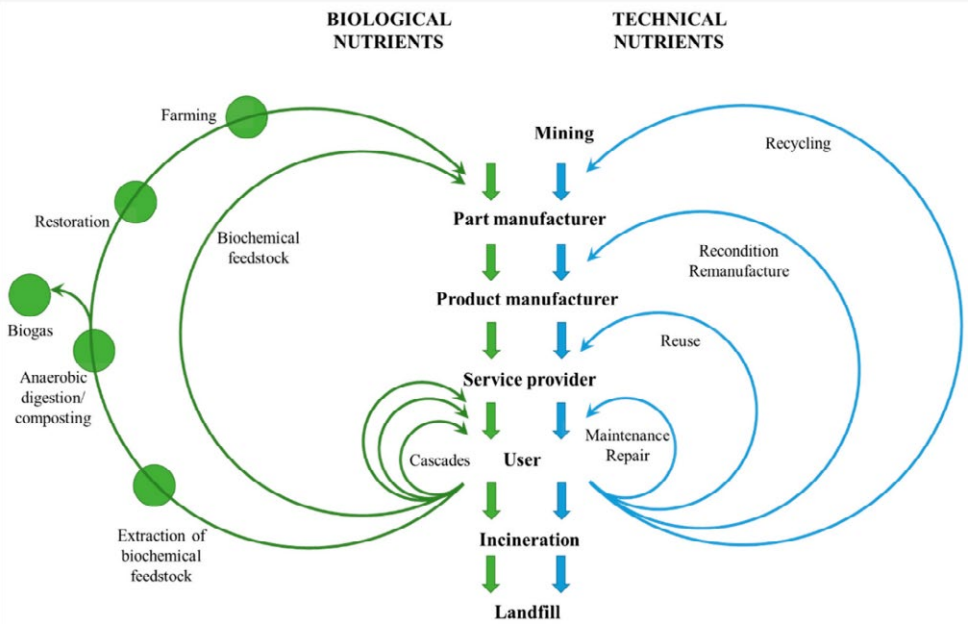
Construction activity and building maintenance make up 40% of global greenhouse emissions. Architects are therefore in a special position of responsibility and possibility to make a difference in terms of where the planet is heading.

The 40% is the average emission either form new contruction activity or bulding useage (heating for example). The precise proportion depends on the specificity of locations. Europe is a densely populated continent with an enormous housing stock; only 1% of which is being renovated annally. In Hungary, emissions related to new construction have to be reduced by 500% by 2030 (!!), while approx. 70% of the housing stock is still not modernised, insulated, etc.

Thus, our main challenge of the near future of European design is to UTILISE the structures we already have; to REUSE, ADAPT the existing building materials and buildings to the ever changing needs of functi-on, comfort, etc.ó. The most environmentally friensly material is the one that does not need to be mined, processed and transported - the one that you can find right around the corner.

Adaptive reuse - in our interpretation - is not a cover story for keeping a facade of a building. It is a complex process of investigating the social embeddedness of our structures; creating a flexible vision for future use; setting up a coherent value catalogue for the elements of the built environment.

Architects have been trying to lead the change (see references and literature); however, strict regulations, high comfort expectations and powerful industry standards make experimenting and custom solutions hard. This semester, we will dive into a live project of Budapest which is a fresh initiative of mindful urban design and socially, environmentally sustainable development.



The butterfly diagram of the technological cycle

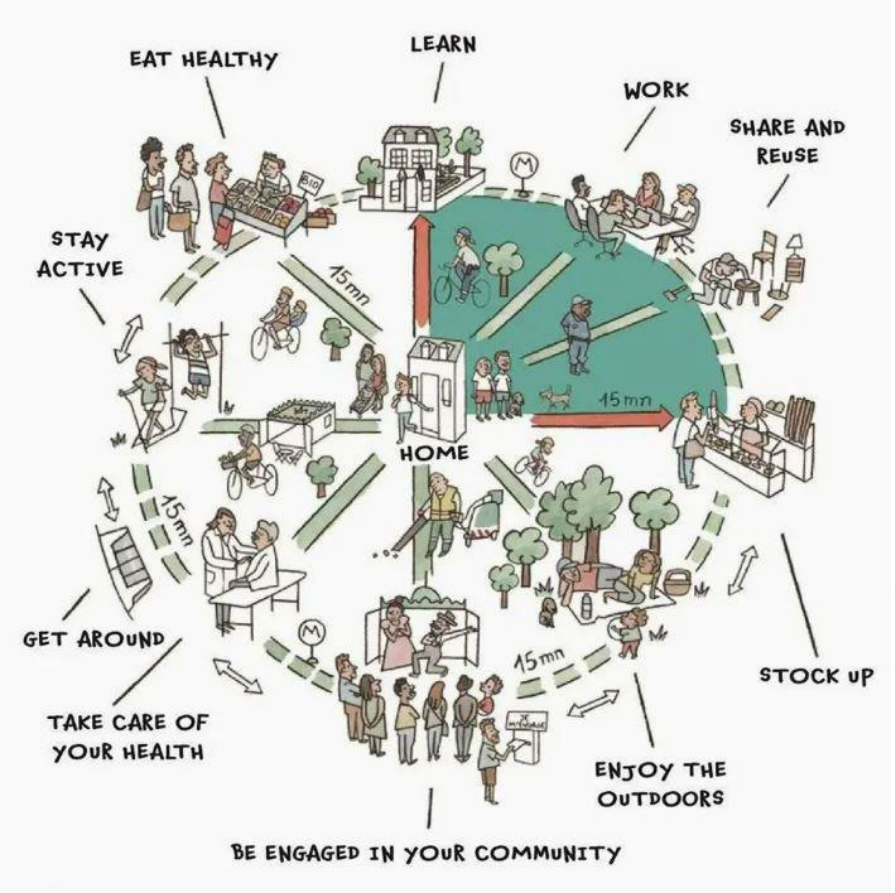
GOALS & METHODOLOGY

GOALS OF THE SEMESTER

The aim of this project is to integrate a circular design approach and adaptive reuse principles into design education, and to learn a more conscious approach to building materials, which is the basis of an environmentally sustainable architectural future. The focus of the assignment is on the value evaluation of the existing building stock, the recycling of building materials and structures, construction from demolished building materials and learning the principles of „disassembly" instead of „demolishment".

METHODOLOGY

Students will work in groups of 3-4 people from different academic years. The first two classes of the semester will be site visits and lectures; from week 2 to week 6 groups will consult with teachers from the Dept. of Explorative Architecture (design) and Dept. of Building Construction (structural and detail considerations). There will be 1 mid-project presentation where the concept of the projects have to be accepted by both departments.



The 15-minute city concept by Carlos Moreno.
See: https://www.ted.com/talks/carlos_moreno_the_15_minute_city/transcript?language=hu

SITE

HISTORY

The „Rolling Mill" (Hengermalom) of Buda was constructed in 1909. Back then, the mill industry of Hungary was the second largest on the continent. The decision to erect this mill on the periphery of the city was made due to the scarce population in the area and the good transportation connections on ship and railway as well. Thanks to this investment, the area became one of the largest industrial parks of the city. The mill complex was finally closed down in 2005. The structure of the silo is a special reinforced concrete, one of the first such strucrure in the world.

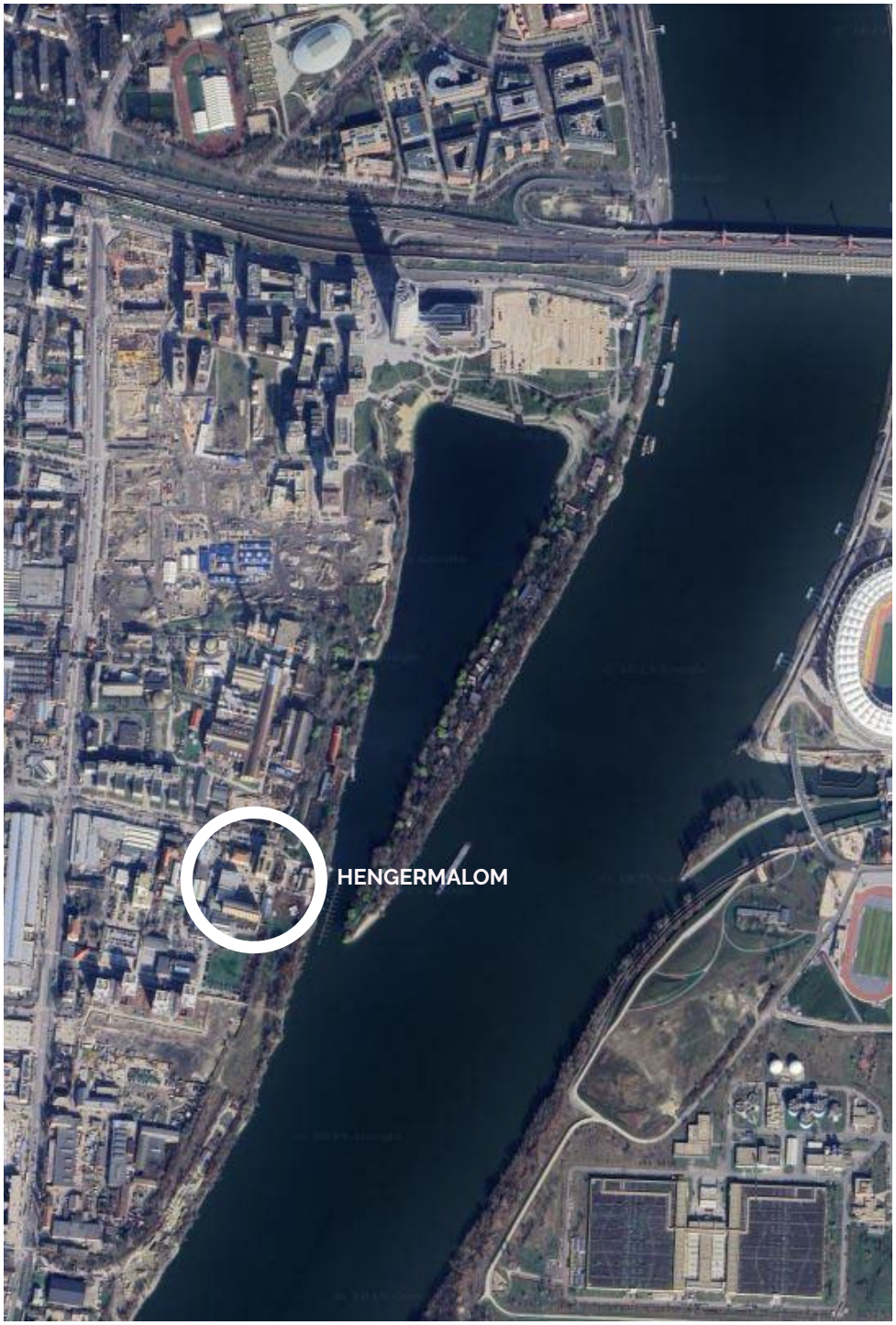
As the city expanded in the 20th century, the environment of the mill became more and more popular for residential and office use. The current development plan of the area is unfortunately lacking the ideal functional mix of the 15-minute-city; recent and ongoing real-estate developments maximise profit and „sellable" surface area without consideration for public services, community areas, etc.

UTILISATION CONCEPT

The owner of the mill (Beltex Ltd.) is open to an architectural, functional experimentation on the site that can lead to a diverse utilization concept for the next 5, 10, 15 years. The aim is to create meeting point of the newly developing district with sports facilities, food service, entertainment and more. The site's vicinity to the river Danube and a possible bridge connection to the recreational aerea of the Kopaszi Dam makes it the ideal spot for such utilisation. The possible functions have been elaborated by Építész Stúdió Ltd. in a feasibilitiy study; the task of our semester builds on their proposals.

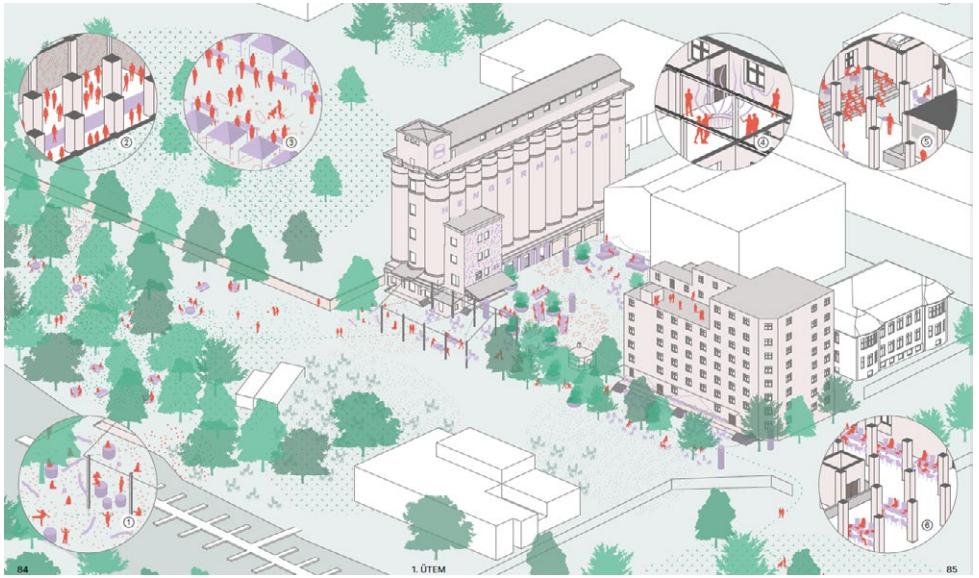
In the semester, we will be dealing with the building of the LISZTSILÓ *(flour silo).*

Find the site here: https://maps.app.goo.gl/3ZeYc14zQSNGEfHB8



The site and functions

Summer at the site for more programs see: http://hengermalom.hu



Temporary utilization concept by Valyo

PROGRAM

The utilisation conept identifies three main functional groups to be placed in the are: **commerce**, **sports** and **culture.**

Teams can choose one of the following programs for elaboration at the site:

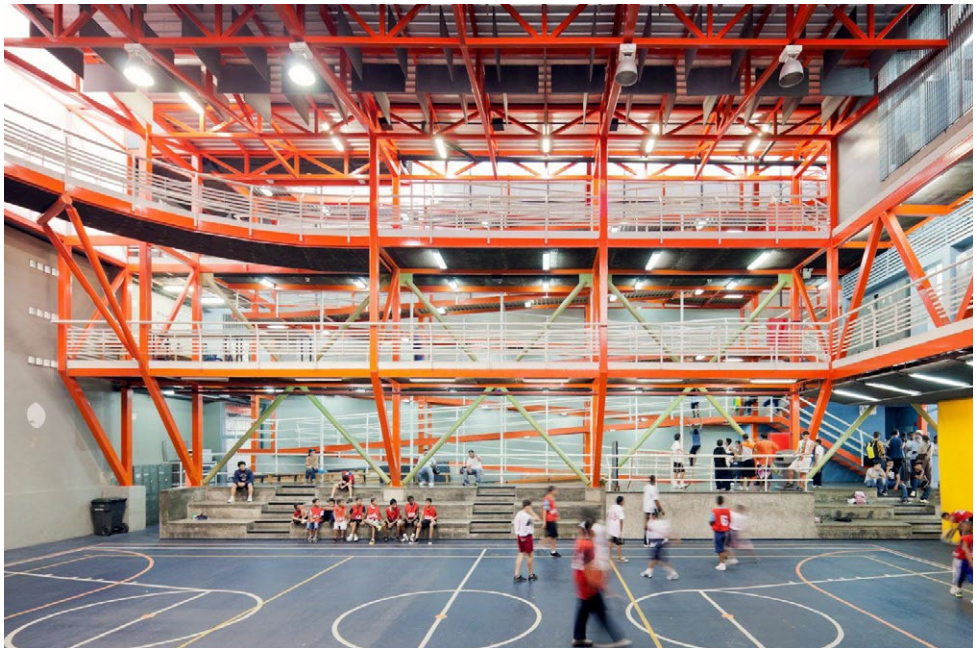
1. VERTICAL SPORTS CENTRE

2. MARKET AND CANTEEN

3. POP MUSIC CENTRE

All interventions sum up to cca. 2000 m² of useful space.
It is up to the team's concept to define the utilization of the building of the flour mill.

Manifesto Market Andel by CHYBIK+KRISTOF, Prague, Check Rep., 2021
https://www.archdaily.com/985267/manifesto-marke-andel-chybik-plus-kristof



Vertical Gym Chacao by Urban Think-Tank, Caracas, Venezuela, 2006
https://www.uttdesign.com/projects/vertical-gym-chacao

Chessy Cultural Center by Opus 5, Chessy, Franciaország, 2023
https://divisare.com/projects/477881-opus-5-luc-boegly-chessy-cultural-centre

DESIGN PRINCIPLES

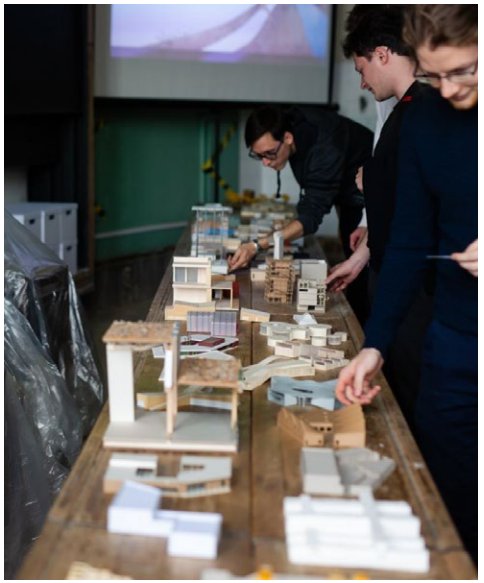
DESIGN GUIDELINES

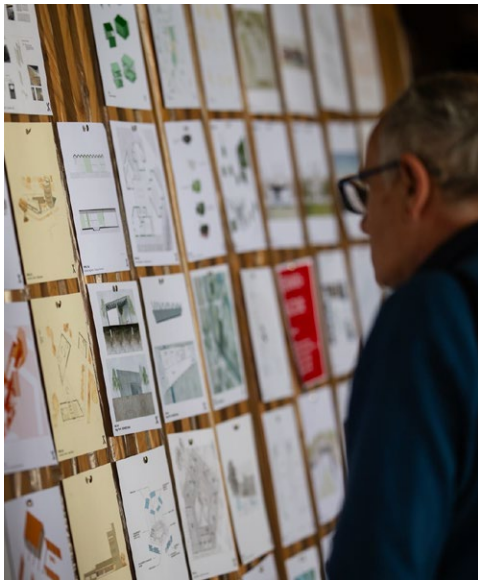
As we focus on sustainability on social and technical levels, we expect the projects to have a good link to the neighbouring urban fabric, to reflect on the industrial past of the site in a contemporary manner. All demolishion must be justified with substantial explanation; we encourage teams to use structures fit for later disassembly (rather than demolishion); to utilise demolished materials on site as much as possible and to keep existing structures to the greatest possible extent.

The ideal outcome of the project provides a linkeage between the city and the river; coordinates the flow of people arriving to the area, includes the outdoor spaces as possible functional extensions and has a small ecological footprint.

STRUCTURAL GUIDELINES

Emphasis should be placed on the structural design of conversions, with particular attention to the building envelope. Energy conscious solutions must be applied (thermal insulation, wind-and raintightness, airtightness), and special attention must be paid for the façade cladding system. The new structures should be made from environmental conscious materials and their energy demand (ecological footprint) must be minimized.





Exhibitions of previous projects

SUBMISSION REQUIREMENTS

MID-PROJECT PRESENTATION

1. Functional diagram and analyisis
   Areal analysis on areal map 1:2000

2. Architectural (&landscape) intervention on 1:200 scale drawings
   -demolishment plan (all floorplans + 2 sections and facades if applicable)
   -architectural plan (all floorplans, 2 sections, 4 facades)
   -areal plan indicating the main entrance(s), service entrance(s), concept for green and paved areas, the building's connection to the campus environment, 1:500 scale

3. Material usage concept (reused&new), incl. approximate quantity schedule/estimation of demolished or disassembled materials

4. Short introduction of 4 references (2 architectural, 2 structural)

5. Conceptual 3D images
   (2 pieces, one of the main interventions, one an aerial showing the context of the surrounding buildings)

In the plans, please indicate clearly the existing and new structures by using a colour code!

FINAL PRESENTATION

1. Concept development, concept explanation

2. Areal analysis on a map of 1:2000

3. Areal plan with landscaping interventions, 1:500

4. Architectural intervention on 1:100 scale drawings:
   -demolishment plan (floorplans + 2 sections and facades if applicable)
   -architectural plan (floorplans, at least 2 sections, 4 facades)

5. Material reuse, circularity and sustainability concept
   including a list and quantity schedule of demolished elements, and the elaboration of at least two techniques of the following list:

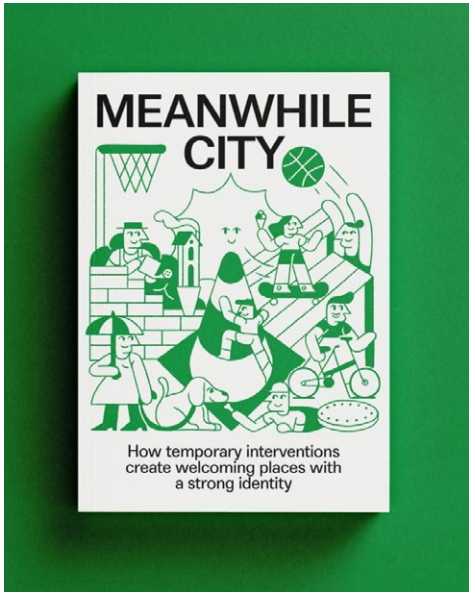
   -bio-based material use
   -on-site reuse of disassembled materials
   -recycling of demolished materials as new structures on site
   -layered/spatially distributed and sectioned thermal insulation concept
   -passive heating / cooling solutions

6. Conceptual 3D images
   (at least 2 pieces, one of the main intervention, one an aerial showing the context of the surrounding buildings)

7. Section and detail view from a typical part of the facade and the roof of the building in 1:20 scale to introduce the applied structural solutions.

In the plans, please indicate clearly the existing and new structures by using a colour code!

LITERATURE



MARKO, P. & LISA, R., 2022. *Meanwhile city: How temporary interventions create welcoming places with strong identity.* Bratislava: Milk.

HILLEBRANDT, A., RIEGLER-FLOORS, P., ROSEN, A. & SEGGEWIES, J.-K., 2019. *Manual of Recycling: Buildings as Sources of Materials.* Munich: Detail.

LENDAGER, A. & PEDERSEN, E., 2020. *Solution.* Coppenhagen: Arkitektens Forlag.

MEADOWS, D. H., MEADOWS, D. L., RANDERS, J. & BEHRENS III, W. W., 1972. The limits to growth. New York: Universe Books.

NAGLER, F., szerk., 2022. *Building simply: A guideline.* Basel: Birkhauser.

PIT, M., EDENS, C., SLADOLJEV, I. & HAMMINK, H., 2021. *Lessons in Circularity.* Amsterdam: de Architekten Cie.

ROGERS, L., szerk., 2022. *Material Reform: Building for a Post-Carbon Future.* London: MACK.

SCHEDULE OF SEMESTER

AC. WEEK	DATE	DAY	TOPIC
1	09.08.	Tuesd.	First meeting -schedule, introduction
	09.11.	Thursd.	SITE VISIT
2	09.16.	Tuesd.	Research workshop / presentations
	09.18.	Thursd.	I. CONCEPT CONSULTATION
3	09.23.	Tuesd.	SPORTS DAY - NO CLASS
	09.25.	Thursd.	II. CONCEPT CONSULTATION
4	09.30.	Tuesd.	III. CONCEPT CONSULTATION
	10.02.	**Thursd.**	**MID-PROJECT PRESENTATION**
5	10.07.	Tuesd.	IV. PROJECT CONSULTATION
	10.09.	Thursd.	V. PROJECT CONSULTATION
6	10.14.	Tuesd.	VI. PROJECT CONSULTATION
	10.16.	Thursd.	VII. PROJECT CONSULTATION
7	**10.21.**	**Tuesd.**	**FINAL PRESENTATION**
	10.13.	Thursd.	NATIONAL HOLIDAY - NO CLASS