

The “FORM” in Nature

Faculty: Pratyush Shankar and Priyanka Kanhare

“I like ruins because what remains is not the total design, but the clarity of thought, the naked structure, the spirit of the thing.”

By Tadao Ando

The Design Philosophy behind this studio is: **Informing how design evolves as a manifestation of nature’s principle.** Every natural form has its own hidden principles, geometries, patterns, textures, colors and other attributes, which are unique and different from each other. By studying these natural items and their relevant phenomenon, “Design Language” will be derived.

Through the means of this Studio, we are not trying to emulate nature’s patterns, systems or principle by bio-mimicking them. This studio is designed with the objective **develop a typology/design language by means of deriving form from nature.** It systemically explores the possibilities to learn from natural forms by means of abstraction (drawing and model). Further this understanding is translated to form basics of architectural conceptualization and development of design language. This studio looks closely at the relationship between Nature, Form and Structure as integrated system, as means to generate typology, which will aid in dealing with architectural complexity.

Learning objectives:

- - To observe and derive rules of form from nature
- - To develop design principles to achieve simple forms
- - To develop ability to integrate simple programs with spatial formations
- - To be able to represent design ideas of form making in a coherent manner

This studio will be divided in two parts: 1) Deriving Form from Natural Objects; 2) Deriving Form from complex natural systems by means of Deconstructing and Repeating.

Part 1: DERIVING FORM FROM NATURAL OBJECTS (6 weeks)

During this stage, students will select a natural object and understand their hidden principles, geometries, patterns, textures and other attributes through “Abstraction”. After doing that, they be designing a Pavillion (a simple architectural form) where they begin to understand the spatial opportunity offered by abstraction of the chosen natural form with focus on scale and proportion, organization and light.

Mode of working: Drawings and Models (actual and 3D)

Part 2: DERIVING FORM FROM COMPLEX NATURAL SYSTEMS BY MEANS OF DECONSTRUCTING and REPETITION (6 weeks)

3 weeks: The second stage of this studio will begin with recording how a natural system attains stability (the science and forces that work) with focus on **Identifying the Module which make the system**. Further they will **Deconstruct and Repeat** the module to develop a "FORM" - "Design language".

Examples of Natural systems (complex structure which undergo tension, compression and external pressures, 3D skeleton organizations):

- tree structure (ceiba species)
- skeleton structure which are light weight yet rigid (bird nests, bones)
- shell like structure (tortoise, snails),
- webs (spider webs, leaf veins)
- geometric structure (beehive, flowers)
- Air filled/driven structures Bird feathers

Study their natural system, get inspired from his system. Post the natural system study, students were asked to look at 4 systems: Vaulted or side ways thrust system, Tensile Structures, Deployable structure, and Space frame. Later identify case studies, which have used similar system in construction. After understanding the principle/concept of construction system from case study, repeating the module and taking clues from site, how would you design your system? Design project: Cover or design roof for Parking.

3 weeks: The final design will showcase a systemic and tectonic quality of design derived from nature.

Mode of working: Drawings and Models (actual and 3D)