DIGITAL DESIGN SEMINAR
: RHINOCEROS/GRASSHOPPER TO DIGITAL FABRICATION

ARCH 576, ARCHITECTURAL DESIGN SEMINAR, FALL 2019
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DESCRIPTION
This seminar class researches, creates, and publishes a variety of entire design processes facilitating advanced digital technologies. Formalyzed by the parametric design methodologies, the students’ creative works are realized into the physical models assisted by the digital fabrication tools. In the seminar, students investigate contemporary technological development in Rhinoceros3D/Grasshopper and produce creative outputs utilizing the digital fabrication tools.

SCHEDULE AND ASSIGNMENT
For the first half of the seminar, students focus on the research of the technological enhancements and the case studies of parametric design methodologies, and on the practice of Grasshopper. Students conceive their design solution about wide-open topics that are not only belonged to architectural design areas. It rather expects such a variety of final products like artworks, industrial design, operational machinery parts, analytical tools and so on. After the mid-term presentation of
the digital design, students pursue the realization of their design by digital fabrication tools. They facilitate the currently available fabrication tools like 3-axis CNC machine, laser cut, 3D printer, 5-axis robotic arm as well as the conventional craftsmanship in order to carve, print, cast and assemble the digital models.

Students will have the following assignment in the class.
1) (Weekly Lab) Practice of Grasshopper (Digital file & Demonstration): Based on the given topics, two students will lead and demonstrate the Grasshopper scripting per week.
   * Tutorial: Grasshopper Primer v3.3

2) (Mid-term Assignment) Abstract painting digitally designed by parametric design method.

3) Paper/Presentation
   - Case study-1: Architectural application of parametric design methodology (1300 words minimum)
   - Case study-2: Projects/Products that utilize digital fabrication tools (1300 words minimum)

4) (Final Assignment) Furniture design projects (Individual) or Pavilion projects (Group)

CLASS STRUCTURE
There are two sessions for this seminar; class and lab*. In the class, students present and discuss their research and the design process following the assignments. Although this class requires students' basic knowledge and experience of Rhinoceros3D/Grasshopper, in order for students to help their initiation, students will study Rhino/Grasshopper in the lab hours.

* We stay in the same classroom for the lab hours. It strongly encourages students to bring their own laptops.