XS – Design/ Build ASO Studio
Semester 2 of a Yearlong Experience

S.Lee

"you can't hammer a nail over the Internet."
_ Matthew B. Crawford, Shop Class as Soulcraft: An Inquiry Into the Value of Work

BACKGROUND:

_ the Design/ Build ASO Studio is part of a year-long, interdisciplinary, design-build project to provide a diverse group of students with the opportunity to work with their eyes, hands and brains to transform an idea from a virtual world into the physical world. In this semester, we will again work with Campus Design & Facility Development (CDFD), Facilities Management & Campus Services (FMCS) and campus constituents to improve the quality of life on campus through engaging design intervention(s). The project is fully funded and the expectation is that the project will be turned over to the campus community by the last day of classes in the spring semester.

DESIGN:

_ during the fall, the Building Integration Option Studio (BIOS) [http://www.andrew.cmu.edu/course/48-400/] students envisioned a farmer's market for Hazelwood Green creating design proposals and developing a language of material, joining, enclosure and structural systems for objects at three scales–XL-M-XS (30,000 sf, 3,000 sf and 300 sf).

BUILD:

_ during the spring we will on-board Jon Holmes and be joined by interested students from across campus to construct/ install the object(s) on their site(s). Fabrication and assembly will be done in the Shop and on site.

PROGRAM:

_ the fall BIOS students produced awesome design proposals for "XS" components that will be a potential launching point for the spring build experience. These designs are just that–launching points–they have not been considered in the context of the Carnegie Mellon campus, so design will be a critical component of the early spring.

_ we will start the semester by reviewing the work from the fall, forming three "competition" teams, conducting a 2 week design competition and determining–through a collaborative process–the project that we will build in terms of aesthetics, budget and workforce.

_ the tasks include but are not limited to:
 _ forming teams & collaborating in a design competition
 _ developing & completing construction documents and project management plans
 _ fabricating and testing full scale prototypes
 _ revising construction documents based on evaluation of prototype(s)
 _ specifying and procuring materials
 _ constructing/ installing the object(s) on their site(s)

Images from 枯山水–Spring 2022
Top:
   GeoGrid–S.Wang/ K.Cho (B.Arch '22)
   (Photo Credit: M.Henninger)
Middle:
   SHOP– M.Chen (B.Arch '23)/ J.Chui (B.Arch '22)
   Site–K.Cho (B.Arch '22)/ Slee (B.Arch '75, M.Arch '77)
   (Photo Credit: M.Henninger)
Bottom:
   Final Review–10 May 2022
   (Photo Credit: J.Kappelt)

PROJECT STRUCTURE

Assuming twelve students, we will divide into four three-person teams for the design competition. Once the design(s) is selected, we will recompose the teams based on a breakdown by system.

Jan 23: Kick off semester, Design Competition

Feb 23: Refine design proposal(s), Present to Design Review Committee (DRC), Finalize design proposal(s), Start construction documents, Start cost estimating

Mar 23 Pre-Spring Break: Present final design to DRC, Fabricate full size prototypes, Finalize construction documents, Begin ordering materials

Spring Break

Mar 23 Post-Spring Break: Begin fabricating components in the Shop, Prepare site

Apr 23: Continue fabricating components, Assemble components on site

Early half of May 23: Punchlist, Complete the project

Commencement Week: Final review, Graduation

VERTICAL INTEGRATION:

_ an explicit intention of this studio is to integrate students at different points in their degree programs and students from other degree programs to maximize self-learning and to learn how to work in multi-year and multi-discipline teams.

EVALUATION CRITERIA:

_ the following criteria will be used to evaluate student work in the studio:
 _ collaboration: the situation of two or more people working together to create or achieve the same thing
 [https://dictionary.cambridge.org/us/dictionary/english/collaboration]
 _ structure, enclosure & materials: the degree to which the set of selected building materials, components and systems and their proposed implementation are appropriate to the intended occupancy, articulate the desired architectural order, and satisfy the physical design requirements
 _ sustainability: the degree to which the design(s) integrates sustainable principles including passive and active strategies, rainwater management, upstream/ downstream material recycling issues and life cycle assessment
 _ [de-] constructability: the degree to which the proposed design is informed and developed in response to an understanding of the processes of construction and the concept of Design for Disassembly (DfD)
 _ construction documentation: the degree to which the construction documents effectively depict the constructed artifact and enable a successful build
 _ project management: the degree to which construction activities are planned, resources are allocated, and materials are procured to effectively complete the project within the budget by the end of the semester
 _ sweat: the effort and time devoted to constructing the artifact and to developing the design throughout the construction process

LEARNING OUTCOMES:

_ as a result of this course, a student should be able to:
 _ collaborate with others - both inside and outside the discipline of architecture
 _ integrate systems - structural, material, enclosure and formal
 _ develop criteria and evaluate multiple design alternatives
 _ draw technical documentation using the conventions of architectural representation
 _ translate design proposals into built form
 _ learn basic construction techniques–layout, assembly, hand tools, power tools, improvisation