Computing Drawing: Similarly Different Lines

Syllabus

This studio explores computer programming as a design medium. Programming, defined as the design and execution of algorithms, allows designers to tap into the science of computing in ways that more fashionable approaches to digital media (parametric modeling, for example) preclude. How programming can and should be used to conceive of architecture is a perpetually open question. Rather than immediately computing architecture, this studio begins by computing drawing, which by definition allows the human eye and mind to play a prominent role in design. Conceptions of authorship, ambiguity, and representation remain the focus of attention and criticism as the course moves from drawing to building (and back to drawing).

The studio, as a community, cultivates an actionable obsession with three foundational elements of architecture: line, surface and corner.

Beginning with a kind of calisthenics in the Python programming language, students control a machine (pen plotter, laser cutter or other) that affects paper by marking line(s). Computed (and computing) lines are sorted, grown, aggregated, tested, indexed, critiqued, extended, constrained, broken, extended, etc. In other words, we draw. The inquiry at this stage includes an analysis of linear precedents in art.

The second phase involves lines in space defined by rendered surfaces and articulated as edges rather than marks. The inquiry at this stage includes an analysis of lines and corners in architecture.

The third phase sees the introduction of an urban site and a 100,000 SF program. This large building will have a small portion (925 SF) that is different than the rest. The exact site and program details are revealed later. Computing in the realm of drawing remains a generative force in this phase. Techniques and languages used to represent the building at this phase will influence details, material, and structure.

Objectives and Pedagogy

As an advanced studio, this course aims to convolve a research agenda with an educational agenda. Students are asked to confront and produce (and combine) questions, techniques,

methods, and products that are new to them and new to the discipline. Process and product will be subject to rigorous critique. This studio will rely on and leverage the foundational education–students will continually be asked to operate at their "highest level of craft and intellectual acuity to date"–while simultaneously inviting the questioning of individual as well as collective conventions and defaults.

This studio will include technical instruction and an inquiry into the "topic" of computation, but technique will be presented concurrently with concept. As has been the case throughout the foundational core of this curriculum, thinking and making will be seen as indistinguishable.

Support

The RISD Code Studio (codestudio.risd.edu) is a community resource that may be of valuable to students in this course outside of class. The Code Studio offers tutoring sessions to RISD students. The Code Studio also offers a cross-disciplinary intellectual community with events and publications, both of which are optional avenues to enrich students' experience in this course. The Code Studio also operates a Google group, which we will use a help/discussion forum for outside of class discussion.

Grading and Evaluation

Process and product will both be evaluated together. Iteration and other strategies for asserting methodological rigor will be essential for student success. Students will be evaluated for their participation (through their work and their verbal engagement) in every studio session. Students are expected to respond to prompts provided in each assignment brief as well as those offered through in class discussion and critique. RISD defines final letter grades as follows: A Excellence; B Above Average; C Average (successfully fulfilled all course requirements); D Below Average (course requirements minimally met); F Failing Grade (course requirements not met)

Attendance

This is a fast paced studio with little opportunity for redundancy. Absences, excused or otherwise, will set a student back and will be difficult to make up.

Tentative Schedule

Phase 1: Drawing: Review 3.12

Phase 2: Lines in 3-D Space: Review 4.09

Phase 3: Building: Final review week of 5.18

NAAB

This course satisfies the following conditions for accreditation by the National Architectural Accrediting Board, Inc: Design Thinking, Applied Research

Department/University Academic Policy

Please refer to the "Studio Culture" and "Rules and Regulations" statements on the BEB students resource site.