DESCRIPTION
This course provides advanced students an opportunity to develop design ideas and evocative forms through digital processes such as parametric variation, substitution, and algorithmic generation, and then prototype them using a CNC router. By working hands on with materials such as wood, students will become familiar with how form can complement material characteristics and vice-versa.

Students will focus on a design concept by defining objectives and criteria. They will explore the potentials of the concept through sketching & modeling design alternatives, trying alternative tooling, other representations, making material studies, and precedent research.

As a vehicle for investigation, students will work on light-modulating forms OR propose an independent project. Students can examine how apertures can work with forms and textures to create different optical properties when seen from different vantage points. Students can consider how symmetry operations can be used to generate regular frieze patterns & space-filling patterns, then look at how form generation operations can mimic natural growth patterns.

We will start with apertures in simple wood squares, then move into enlarging the studies to understand how scale affects fabrication. Students can look at how the composition changes when combining components through layering or adjustable connections.

TOOLS
This course will develop computer modeling & carving skills, complemented by hand-machine hybrids and rendering. Students will develop ideas with sketchbooks, Rhino and RhinoCAM software on Windows laptops and physical models. Digital pens will be available for loan.

REQUIREMENTS
- Each week, bring work in progress (Tues) and upload images (scanned sketches, renderings & photos of carvings) + written reflections (Thurs)
- Support peer learning through discussion, Wiki comments (Sat), co-teaching and safety monitoring.
- Research and share concepts and methods
- Complete at least 3 study pieces and 1 larger final carved piece
- Document process and lessons learned in an illustrated report (3 pages, 500 word minimum)
- Contribute to a physical display and submit high-resolution photographs of final work

WHO’S ELIGIBLE
Students must have experience with Rhino modeling software and a rendering software or extensive experience with a similar NJRBS-based modeler. Limited to 10.

REQUIRED TEXT
Schodek, Daniel and Martin Bechthold, James Kimo Griggs, Kenneth Kao, Marco Steinberg, Digital Design and Manufacturing.

Digital Design & Fabrication Seminar
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