Premise:
Confronting the reality of design decisions early and often through prescribed prototyping efforts demonstrates the importance of intent, evaluation, iteration and failure. The core principle of “thinking with your hands” aids strategies for designing and building based on compartmentalizing individual design “problems” that can then be expanded upon. Small, medium and large-scale projects guide students through a cyclical process of inspiration-based brainstorming, sketching, modeling, prototyping, and evaluating; always returning to a reexamination of original intent.

Methodology:
Physical design strategies guide students through hands-on problem solving, building a foundation for successful creation of complex objects with defined evaluation criteria. Simply stated, the components of this process are; Inspiration, Sketch/Brainstorm, Identification of design components, Prototype, Evaluation, Combination, and Assessment of Solution.

Project Scope:
Small projects will focus on simply designing to fulfill one or two defined criteria. Inspiration, sketch, prototype, evaluation, and documentation are all introduced.

Medium projects will incorporate complexity through increasing design requirements; i.e. moving parts, larger scale, etc. Building upon the previous process, students break down overall intent into testable “nuggets” to learn the importance of testing individual solutions prior to combining them into the larger whole. It will be key to have experience with process and integration prior to finalizing design and assembly.

Large projects are derived from student defined problems. Presentations will define inspiration, materials, strategy and intent. The key is to have a deliverable that allows students to utilize lessons from small/medium projects and incorporate strategies for a more personal connection to design/test methodology.