

Architecture Studio: Foundation II / 1st Year Spring

Spring 2015, CMU, Arch #48-105, M/W/F 1:30-4:20
Studio Website: www.andrew.cmu.edu/course/48-105

Coordinator: Kai Gutschow
Email: gutschow@andrew.cmu.edu
Off. Hr: by appt. in MM302

(1/12/15)

Project 1: TECTONIC SYSTEMS: Marble & Plane

LEARNING OBJECTIVES:

Students develop and refine abstract design and critical thinking skills as they explore:

- ideation and iteration through sketching and modeling of paper
- the definition and use of basic compositional moves involving planes and surfaces
- a 1:1 investigation of motion, path, and manipulation of simple materials
- the influence and relationship of geometry and form on performance
- issues of “measurable performance criteria,” even in abstract design
- visual literacy and imagination, the need to develop multiple solutions
- craft in drawing and modeling

Proj.1, ASSIGNMENT 1 - IN CLASS (Mon. 1/12)

Part 1) You will be given 15 minutes, several pieces of 11x17 paper, and a marble. Shape the paper in any way you like, to achieve these two goals: 1) make your marble move between two points using only gravity and your paper structure, and 2) make your marble stop, using only the paper and your shaping of it.

Follow your instructor’s guidelines, try to create several variations in 15 minutes, such as:

- do the first one with only one sheet, and without any tape, glue, cutting, or tearing
- in subsequent iterations, allow yourself to use tape or glue
- then begin to cut or tear the paper to enhance performance and form
- then connect more than one sheet to create bigger structures
- create variations with a single, pre-defined path, and with more random movement
- work on varying the structural rigidity through folding & geometry
- diagram your models with some conceptual sketches after each iteration
- design an idea through a quick sketch, and then attempt to model it in paper

Work quickly at first to explore many options: make a lot. Design is an iterative process: often a process of trial and error, with good ideas, and failed experiments. You will not get it “right” on the first try. But by speculating, imagining, making, seeing, critiquing and reworking, you will learn with each attempt. Build upon this knowledge as you move forward. Do not be afraid to make and test ideas, or partial ideas, that may not work, as these can yield surprising results later on.

Save and record each design, sketch, and iteration with at least one photo. Post later to the class Pinterest site (more on that later).

After 15 minutes, gather with classmates and instructors to share, discuss, and critique your first ideas. Work to articulate your thoughts, work process, and results; be clear. Learn from your neighbors and instructor; be flexible and allow your ideas to change. Be self-critical; announce your own “mistakes” or “failed ideas.” Deepen your concepts.

SOME SOURCES (for future reference)

Angelil, M. & D. Hebel, Deviations. Designing Architecture. A Manual (2008), pp.36-63
Ching, Architecture: Form, Space, and Order 3rd ed. (2008); and Ching, F. & J. Eckler, Introduction to Architecture (2013) Ch.6.

Colvard, D. & L.R. Weinberg, “Marble & Plane,” exercise, BAC, 2012

Eckler, J. Language of Space and Form: Generative Terms for Architecture (2012)

Jackson, P. Folding Techniques for Designers: From Sheet to Form (2011) and Cut and Fold Techniques for Pop-Up Designs (2014)

Reiser & Umemoto, Atlas of Novel Tectonics (2006)

Simitch & Warke, The Language of Architecture: 26 Principles... (2014)

Steino, N. & M. Ozkar, eds. Shaping Design Teaching (2012)

Vyzoviti, Sophia. Folding Architecture: Spatial, Structural, Organizational Diagrams (2003)



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Proj.1, ASSIGNMENT 2 - HOMEWORK (Due Wed. 1/14, 1:30pm)

Architectural design cannot be merely intuitive or yield arbitrary form: it must work within pre-defined constraints, address specific criteria, and solve particular problems. In your design process, work to develop “design criteria” and “performance measures,” as well as clear “concepts” and “intentions” that will allow you and your classmates to evaluate the success of your work, and define concrete ways to “improve” your work.

Think about the “performance” of your marble and design with respect to the following:

- creating a defined path
- creating topography or a “field” for more varied or multiple movements
- creating and defining “spaces” in it under your model using ideas of “spatial definition” learned in 48-100
- controlling the motion of the marble, and changing it over time
- using ink or paint on the marble to “track” or “record” its motion and path
- stopping the marble in various ways

Consider the material qualities of the paper. What are the conventional ways to shape paper? What might be unconventional but productive ways to shape paper? What are paper’s limitations? Think about:

- strengthening the paper
- altering the physical properties of paper
- combining or attaching multiple pieces of paper
- considering how the paper might change over time, through deformation, etc.
- use heavier paper (but not cardboard) to create a more structurally sound, well-crafted version of several of your marble-moving designs.

Follow the guidelines of your instructors, and consider the following variations:

- design, build, or continue an idea proposed by another student, share ideas
- collaborate with a partner, synthesize two ideas
- double the size of the project
- change the scale of the project to accommodate a (hypothetical) bigger marble

Repeat the assignment several more times, in 15-30 minute sessions, but change or add criteria and goals. Work to develop multiple ideas, variations on a theme. Avoid being stubborn, or sticking only to your first instinct or one line of thinking. Try something new and uncertain. Force yourself to pursue an uncomfortable or difficult direction.

Eventually you should determine a few specific “design intentions” and “performance criteria” for your own work. Then “improve” your model with respect to: 1) your particular design intent/concept, 2) the functionality of the moving marble, and 3) the beauty and spatial sophistication of the crafted form.

For Wednesday:

- read syllabus, send Kai info on Pinterest account, be sure you sent reading response
- set up your work table and the studio around you to prepare for the new semester
- discuss your ideas with colleagues, share inspirations, do research on the web
- create at least 5 notable variations or iterations of your marble-moving apparatus; at least 3 should be closely related in intent, and show improvement and refinement
- create a series of sketches that diagram the main idea of your designs;
- in at least one sketch, increase the scale of your object dramatically in a drawing so that it reads as architecture.
- diagram or chart the marble path, as well as the visual/sculptural form of the design
- describe your main concept and the path of the marble in words (200-300 words)

