Department of Architectural Technology
COMP/FAB Certificate Program
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Project 02: Lightness of Paper

CONTEXT:

"All material in nature, the mountains and the streams and the air and we, are made of light which has been spent, and this crumpled mass called material casts a shadow, and the shadow belongs to light."

—Louis Kahn

OBJECTIVE:

Light can transform the way we perceive a space, a wall, or a surface. For this project, treat light as form. The challenge is to construct a sculptural object that emits variations of light intensity. You may use folding and layering techniques for structural stability. You are going to explore light and shadow through patterns, layering and variations of apertures to create a material effect. You may use paper tabbing as a means of connecting various parts or ingeniously create a type of paper hinge.

Choose one of the following form creation approaches below as a basis for your own design. We go over all of these techniques in class.

- **Surface Panelization**
- **Waffle slits**
- **Repetition and stacking**
- **Developable Surface Strips**

MATERIAL:

Bristol Board or Paper. (Choose appropriate material for your needs)

FABRICATION:

Craftsmanship; Structural Stability; Expression of Construction Methodology

DELIVERABLES:

Part I - Due Friday March 6th, 2020

Explore- Using bristol or other paper, come to class with a minimum of **3 hand made** prototypes exploring your fabrication system. Also create a minimum of **3 freehand** sketches of your idea for the lamp.

Document your process through photography/video. Document each step of your investigation. Think of these steps as rules. These rules will form the basis of an algorithm. You may use bristol board paper for your prototypes. Once you have documented your prototypes place the photos into a document using software of your choice on an 11x17 landscape format.

Things to consider:

- How does cutting affect the structural integrity of paper?
- Think about connection approaches and tolerances.
- How does your prototype mediate light

Submit your PDF to your folder on the google drive.

Your email subject should named using the following format:
ARCH 3590 Project 02 Part 1.

Part II - Due Monday March 23th, 2020

Light as Form - Create a 3D model of one of your prototypes on the computer. Minimum cubic volume of your lamp is 12x12x12. Note that volume does not mean footprint. As you build your model, document each step of the way. Keep track of all of the operations you are performing in the model to achieve the form you prototyped by hand. **Geometrically break it down**. Consider IKEA building instructions and make your own building instructions guide except that in this case the model itself is a recipe for reproducing the geometry of your prototype. Capture a minimum of 3 screen grabs.

Create at least **1 new and improved** hand made model of your prototype.

Submit your work to the drive using this format: ARCH 3590 Project 01 Part 2.

Part III - Due Friday April 3rd, 2020

Test - Create a digitally fabricated piece of your model full scale. Test your connection style, material, and method.

Submit your work to the drive in this format:
ARCH 3590 Project 01 Part 3.

Part IV - Due Monday April 6th, 2019

Test Again - Creating prototypes is a requirement for successful digital fabrication. Create a complete digitally fabricated version of your lamp. In this step, you will be testing your model in physical form. This will be an opportunity to test your parameters, material, form, connections to the light source. You must do this step!

Submit your work to the drive in this format:
ARCH 3590 Project 01 Part 4.

Final - Due Friday April 17th, 2020

- Concept Images
- Plan/Elevations/Sections of your Lamp
- Exploded Isometric/Axonometric with Details of how the Lamp is assembled
- Rendering of overall form
- Finished Model, Partial Model (Part III + Part IV), Prototypes (Part I) = 6 Models Min!
- Photos of models showing shadows/light

Note: Sections should show geometry in the background. To get the best quality photos you should photograph these in natural sunlight.