

INDUSTRIAL DESIGN OUTREACH

INTERNATIONAL

SPRING + FALL 2014 PROJECT

“iDo is probably one of the most fulfilling projects I’ve worked on. Working with the students at Mission High is an experience I’ll never forget and I feel like I learned so much about people and compassion.”

- TAYLOR BALLARD
SFSU STUDENT MENTOR

ABOUT OUR ORGANIZATION

The Industrial Design Outreach Project, or more commonly known as iDo, was established ten years ago by director Martin Linder. Our project focuses on promoting the field of Industrial Design and using some of its methodologies to enhance the education of both high school and university students. This is done through hands-on interdisciplinary design projects, where iDo provides students with experiences that foster curiosity, promote creativity, and build self confidence.

By developing and delivering design curriculum to high school students, university students gain experiences that promote teamwork; enhance communication, organization, and improve presentation skills; and provide a forum for participants to give back to their community.

Throughout the years, iDo has reached a countless number of students in different schools throughout the Bay Area. This past year, however, we obtained the opportunity to change things up. In the Spring semester, iDo partnered with a new team in Seoul, Korea to develop a curriculum and prototype it in conjunction. After many months of hard work, our team has developed Project Illumination, which has been delivered as a seven week project at Mission High School in San Francisco, CA.

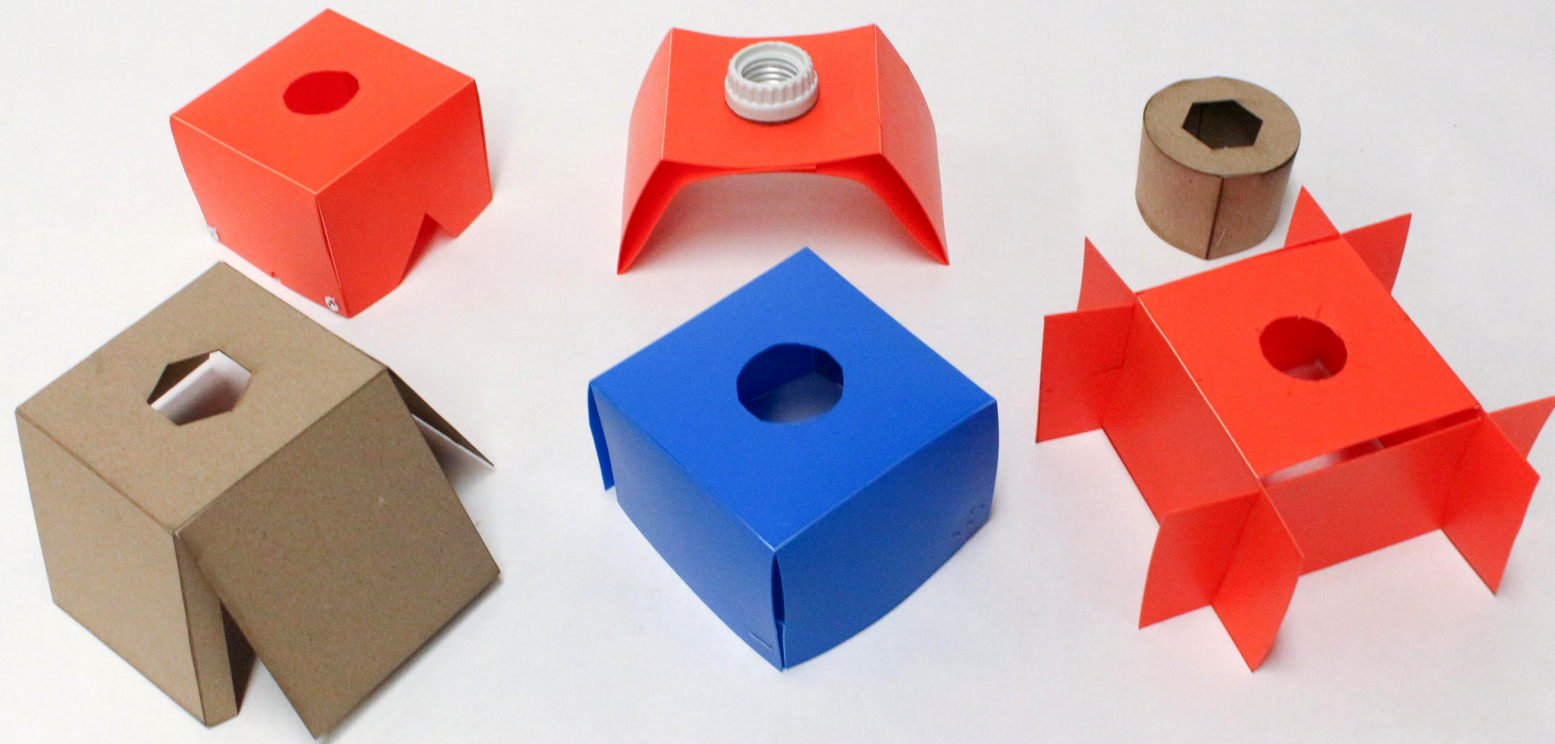


CREATING A UNIVERSAL PROJECT

For this experience we've had the great pleasure of developing this project alongside a team in Korea. This team was led by the extraordinary Subin Lim and Sung Joo Bae of Yonsei University. They along with their strong team of mentors worked alongside our team in America to ideate, develop, prototype, and test out different project ideas.

The ideation and development stage of the project required a great amount of work from both of our teams. The teams worked hard to come up with different project ideas, analyzed constraints for the project, testing different materials, and building the project syllabus and deliverables.

A very special thanks to all the mentors and contributors of iDo Korea: Seol Lee, Gyubin Son, SeungJi Jeong, Grace Kwon, Jinyoung Lee, and Na-Young Kim. Additionally, thank you to our team in San Francisco: Makenna Cook, Jennifer Cheung, San Yee Chung, Justin Pangillinan, Jenny Lam, and Mariana Lobos.



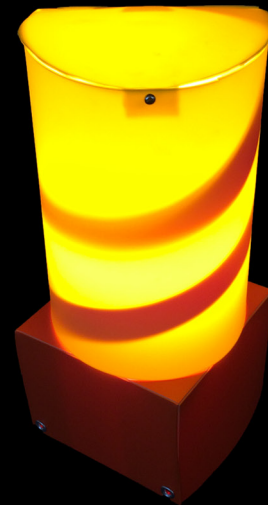
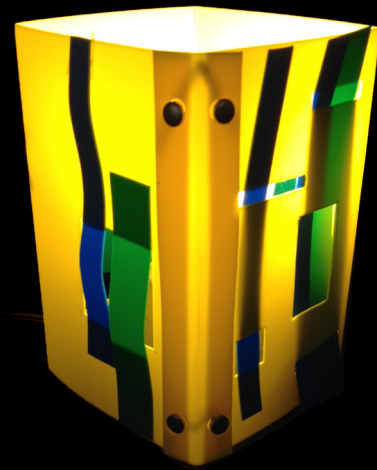
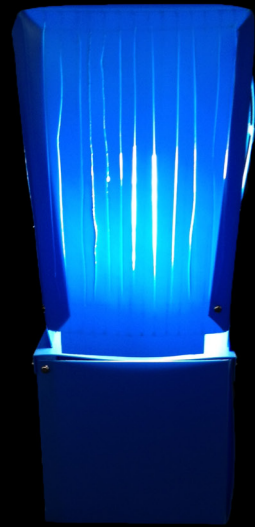
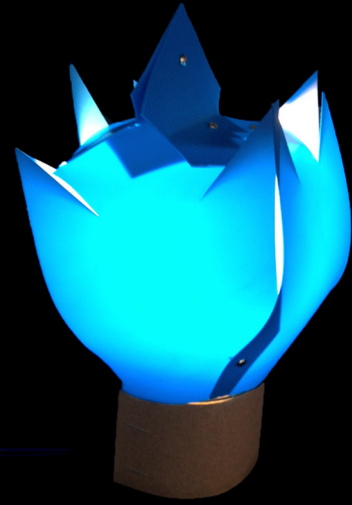
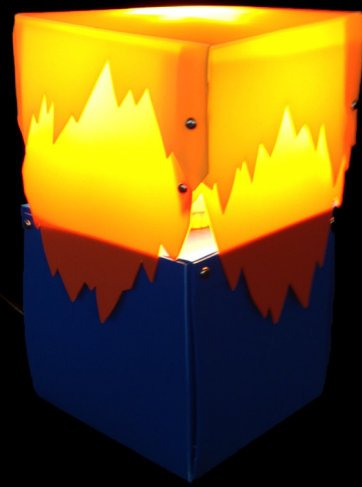
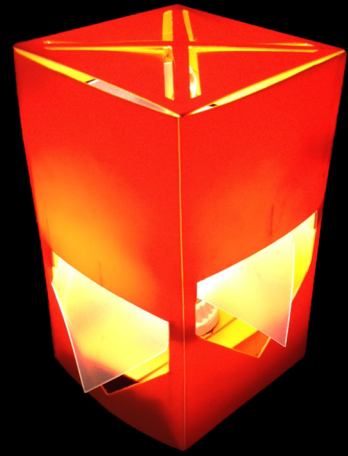
TESTING OUT MATERIALS AND TECHNIQUES

The iDo team of Spring 2014 focused for many sessions on testing out a number of different materials for the lighting project. The main goal of this stage of the prototyping phase was to explore the different possibilities each material had to offer and the advantages of using one over the other.

After many hours of exploration, the team decided upon using a light and flexible material— High-density polyethylene (HDPE).

By using this material, it gave both our teams the opportunity to produce a highly crafted project with materials that could be easily produced without the use of power tools.

After the teams decided upon a material to use, the experimentation phase began. Mentor prototyped different lighting projects and tested different bases and method of joints and connections in order to be able to inform future mentors of the best ways to manipulate the HDPE successfully.



EXPLORING THE POSSIBILITIES

Mentors from our team in iDo America created different lighting projects in order to fully understand some of the constraints that had to be established in order to execute the project in such a short period of time.

In this phase we discovered both the ease and challenges of working with such a flexible material as HDPE. While the material is very diverse and can be formed into different shapes and directions, it is still a flat 2D material that has its limitations.

“Being able to show the students the design process and bring their creative ideas to life has been an excellence growing experience.”

- JAY COX
SFSU STUDENT MENTOR

MEET OUR FALL MENTORS

This project presented a new opportunity for us. Since we began designing the project with our team in iDo Korea, our guidelines and specifications for our final projects had to be attainable by both teams. Therefore, after plenty of research we came to the decision of working on an illumination project with a light and flexible material— High-density polyethylene (HDPE).

By using this material, it gave both our teams the opportunity to produce a highly crafted project with materials that could be easily produced without the use of power tools.

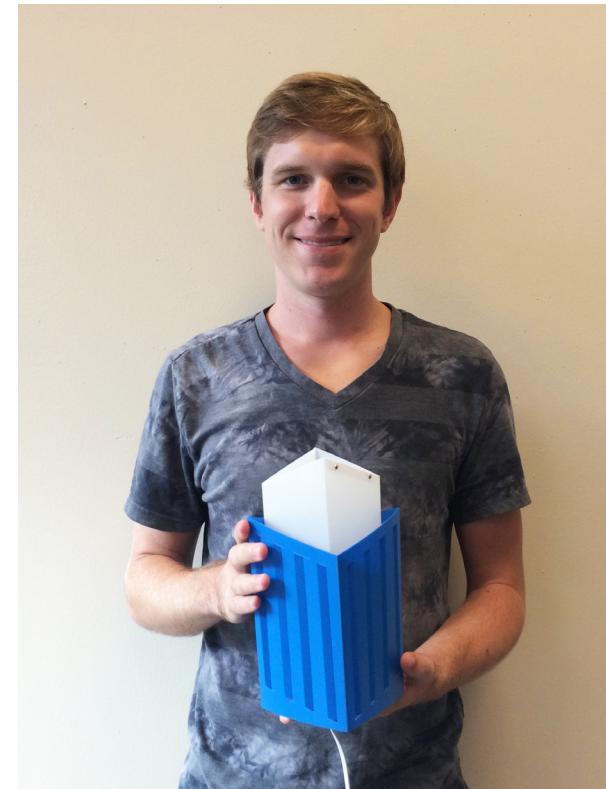
Our project was guided by our choice of materials but additionally by our seven week time frame. We opted for creating a 14 session project in order to ensure that our university mentors had enough time to prepare and for the first time ever, prototype the project themselves.



LUZ MENDOZA



TAYLOR BALLARD



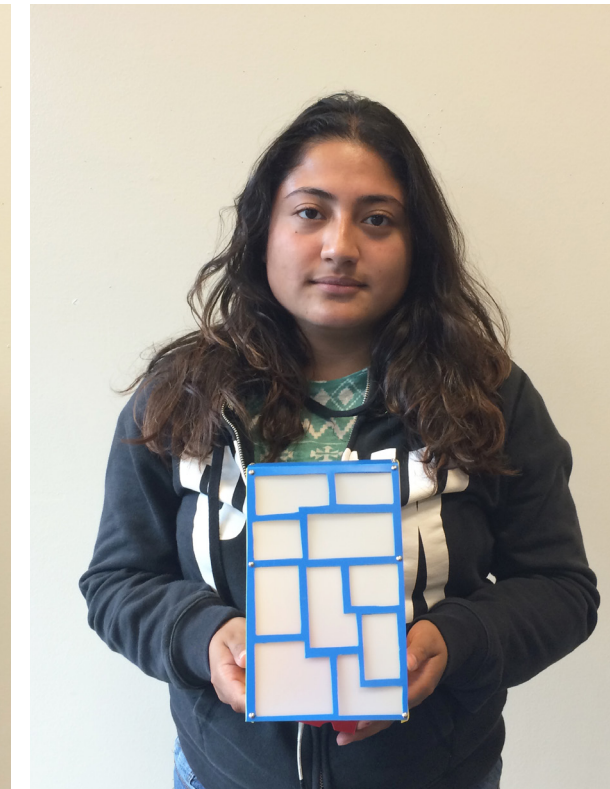
LIAM COLLINS



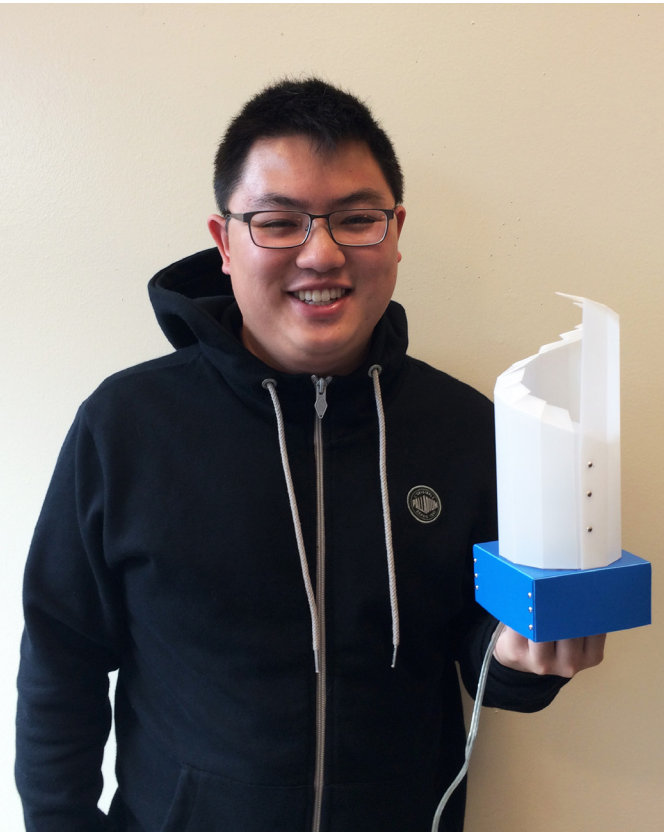
SAULO PICASO



KENNETH WINDHAM



AISHA RODRIGUEZ



JUSTIN WONG



RAMON HYNSON



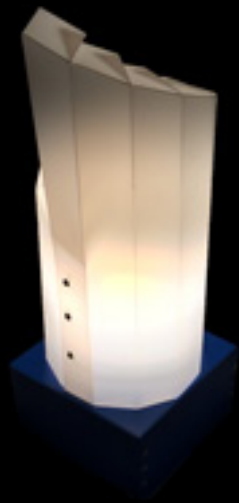
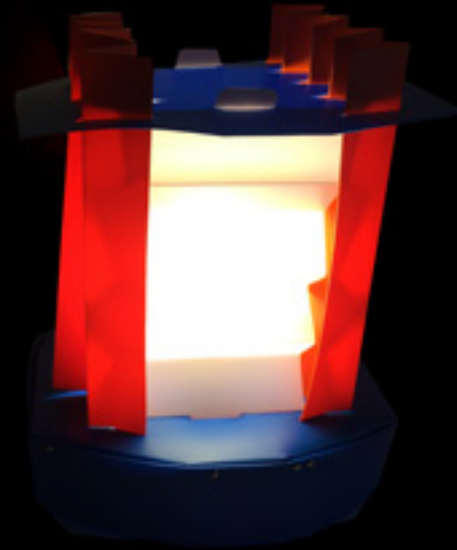
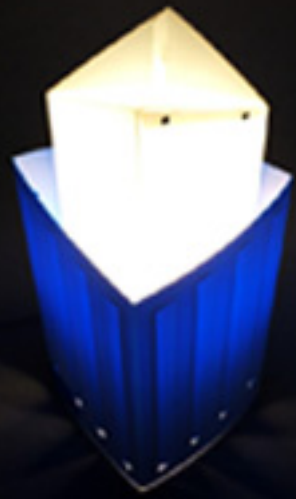
JAY COX

PREPARING FOR SUCCESS

Unlike any other project iDo had delivered before, this semester things were done a little bit differently. In order to be as prepared as we possible could be, the team focused on spending the first few weeks of the semester taking our new group of mentors through the steps of the project.

By doing this, mentors were able to have a clearer understanding of some of the design constraints and limitations of the project.

This also gave us the opportunity to test out other aspects of the project such as our syllabus, timelines, and process.





NEW HIGH SCHOOL. SAME DETERMINED MISSION.

The Industrial Design Outreach program has had the great pleasure of being able to work with many great schools in the Bay Area. This year, however, we had the the opportunity to begin working with Mission High School.

This semester, iDo once again partnered with teacher Tera Freedman to deliver a curriculum to a whole new population of students. With over a thousand students and dozens of after-school programs, Mission High is the ideal environment to teach creativity and foster curiosity.

Mission High students were given the opportunity to exercise their creative ability during a 7-week lamp project where they will ideate, prototype, build, and learn what it takes to make a fully functioning lamp. These students will participant in iDo's first ever cross-continent collaboration project and will show off their results at the end of the project. It's going to be a wild and exciting experience.



THE PROJECT

This project presented a new opportunity for us. Since we began designing the project with our team in iDo Korea, our guidelines and specifications for our final projects had to be attainable by both teams. Therefore, after plenty of research we came to the decision of working on an illumination project with a light and flexible material— High-density polyethylene (HDPE).

By using this material, it gave both our teams the opportunity to produce a highly crafted project with materials that could be easily produced without the use of power tools.

Our project was guided by our choice of materials but additionally by our seven week time frame. We opted for creating a 14 session project in order to ensure that our university mentors had enough time to prepare and for the first time ever, prototype the project themselves.

PROJECT SYLLABUS

Project Description:

Project Illumination will bring students through the process of designing and prototyping a lighting fixture that is to be influenced by elements of architecture. Students are to design a light fixture that complies with the following set of constraints:

Design Specifications:

- Light fixture must be a table-top structure
- Overall fixture guideline dimensions are to be: 9" x 4" (h x w)
- Bulb management: bulb shall be at least 0.5" from any surface
- Bulb exposure should be very minimal
- Light fixture should use an integrated base
- Light fixture must take into account wire management
- Light fixture must be connected using one of the following techniques:
- Tabs, slots, brads, weaving

Materials:

- Railroad Board
- HDPE Sheet (one (1) 24" x 47" sheet per student)
- Light components: LED bulb, wire, ceramic fixture

Tools:

- | | |
|-----------------|-----------------|
| • Pencils | • Hole Puncher |
| • Sharpener | • Tape |
| • Eraser | • Brads |
| • Rulers | • Paper |
| • Cutting Board | • Electric Tape |
| • Scissors | • Wire cutter |
| • X-acto knife | |

PROJECT SCHEDULE

10.15	Mission High Site Visit: Orientation + Meet and Greet Introduction to: Mentors, Project, and iDo	11.10	Field Experience: Session 7 Activity: Prototype 1
10.20	Field Experience: Session 1 Lecture: Project Introduction Lecture: Architectural Elements Activity: Collect Images of Architecture Demo: Introduction to Mood Boards	11.12	Field Experience: Session 8 Activity: Prototype 1 Group Review: Prototype 1
10.22	Field Experience: Session 2 Activity: Mood Boards: Look for Inspiration	11.17	Field Experience: Session 9 Demonstration: HDPE Crafting Activity: HDPE Cutting Exercise Activity: HDPE Prototype
10.27	Field Experience: Session 3 Group Review: Mood boards Presentation: Abstraction Demo: Abstraction Tracing Exercise Demo: Orthographic Drawings Activity: Orthographic Drawings After class work: Finish orthographic drawing sketches	11.19	Field Experience: Session 10 Activity: HDPE Prototype
		11.24	Thanksgiving Break (No Class)
		11.26	Thanksgiving Break (No Class)
		12.1	Field Experience: Session 11 Activity: HDPE Prototype
10.29	Field Experience: Session 4 Activity: Orthographic Drawings Group Review: Orthographic Drawings	12.3	Field Experience: Session 12 Activity: HDPE Prototype
		12.8	Field Experience: Session 13 Activity: HDPE Prototype
11.3	Field Experience: Session 5 Demo: Measuring, cutting, scoring Activity: Constructing a lamp base Group Review: Base Designs Review: Tabs, Connections, and lamp base	12.10	Field Experience: Session 14 Final Project Presentations
11.5	Field Experience: Session 6 Assignment: 3D Sketch Designs Group Review: Sketch Designs Activity: Prototype 1: Railroad Board		



“I really appreciated how patient and supportive my mentor was. She really seemed to understand what I wanted to do and made me really excited to come to class.”

- NATASSJA RAMICH
MISSION HIGH STUDENT

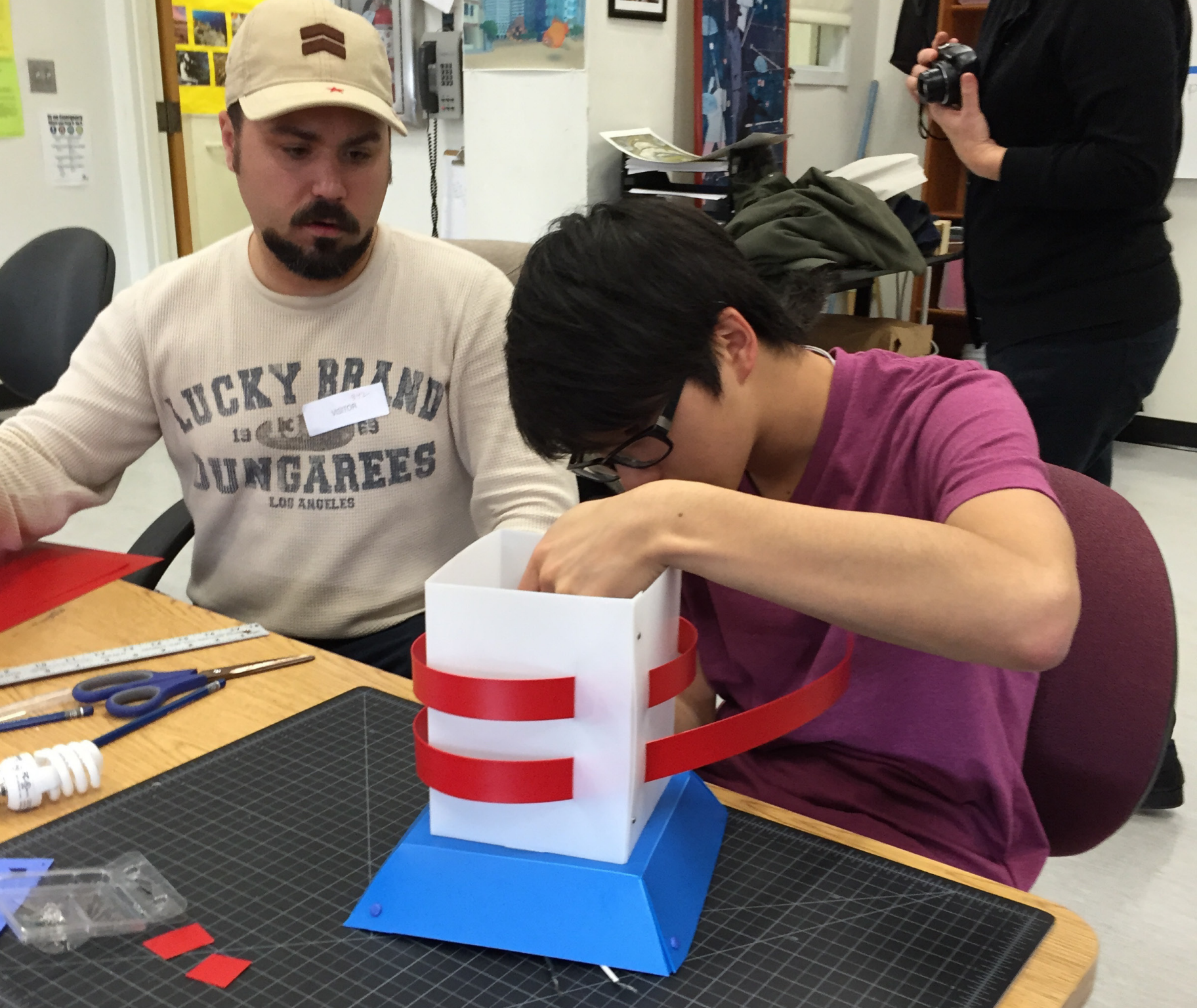
MATERIALS LIST

QTY	MATERIAL	DESCRIPTION	ITEM #	VENDOR	PRICE P/ UNIT
10	HDPE Sheet 1/32" x 24" x 47"	Red	21903	TAP Plastics	\$7.55
10		Orange	21953	TAP Plastics	\$7.55
10		Yellow	21899	TAP Plastics	\$7.55
10		Medium Blue	21874	TAP Plastics	\$7.55
10		Natural	21868	TAP Plastics	\$7.55
10	Railroad Board 22" x 28" (6 Ply)	Red	13105-3102	Blick's Art Supplies	\$0.55
10		Orange	13105-4602	Blick's Art Supplies	\$0.55
10		Yellow	13105-4162	Blick's Art Supplies	\$0.55
10		Dark Blue	13105-5152	Blick's Art Supplies	\$0.55
10		Light Blue	13105-5922	Blick's Art Supplies	\$0.55
2	Metal Fasteners (Set of 100)	Silver	871097005212	Amazon	\$4.21
2	Brad Pack (Set of 200)	Bright	H810-81055	Amazon	\$4.78
10	Fiskar's Hand Punch	1/16" circle	12-23508897	Amazon	\$4.19

QTY	MATERIAL	DESCRIPTION	ITEM #	VENDOR	PRICE P/ UNIT
30	L8101 Socket 2 piece ceramic	Type W/5" Leads 1.5"	DISZZ001	Atlanta Light Bulbs	\$3.88t
30	Portfolio 12' Lamp Cord	Clear	137408	Lowe's	\$7.98
2	Cree LED bulbs 24 pack	60 W Soft White	N/A	Amazon	\$164.77
10	Scotch Painter's Tape	Tan	MMM185	Bulk Office Supply	\$2.72
10	Office Scissor	3.75" Cutting Lenght	SPR02041	Bulk Office Supply	\$1.39
30	X-Acto Knife	#11	57445-1101	Blick's Art Supplies	\$2.49
10	X-Acto Blades (100 pack)	#11	X611	Amazon	\$16.12
3	Integra Economy Pencils (12 pack)	HB	ITA70215	Bulk Office Supplies	\$1.06
30	Non-Skid Ruler 12" (Corck Back)	Stainless Steel	55632-1012	Blick's Art Supplies	\$2.99
3	Paper Mate Pens (10 pack)	Light Blue	13105-5922	Blick's Art Supplies	\$0.55
10	TEKON Wire Strippers	Adjustable	3794	Amazon	\$3.60
1	Rubbing Alcohol				

NOTE:
All items purchased in orders
of 10 were ordered to have
one per mentor.

Quantity of materials needed
was based on a system of 10
mentors and 20 students.



“I really liked the project because I was able to convey what was in my mind. My favorite part was seeing the whole thing come together at the end.”

- EVAN WONG
MISSION HIGH STUDENT

ASSIGNMENT #1: CREATING A MOOD BOARD

Project Description:

Choose 10-12 images of architectural details that represent features you'd like to abstract and incorporate into your lighting fixture. Images can be personal, from magazines, books, and websites on the Internet.

Arrange the images in an 11" x 17" spread in a visually appealing layout. Print mood board to share with group.

Design Specifications:

Use 10-12 images
Layout size: 11" x 17"
Display: printed mood board

Tools + Materials:

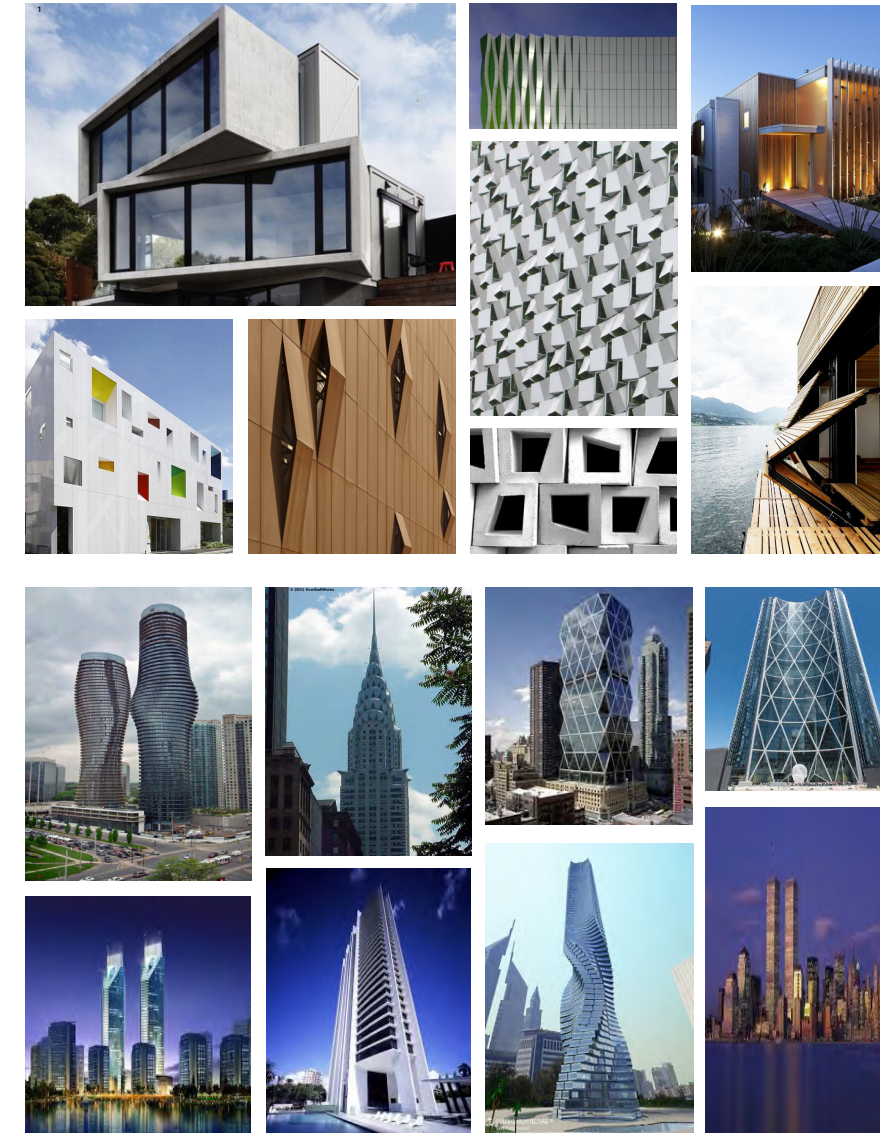
Computer: Illustrator, InDesign, Word

Group Critique: _____

Points: _____

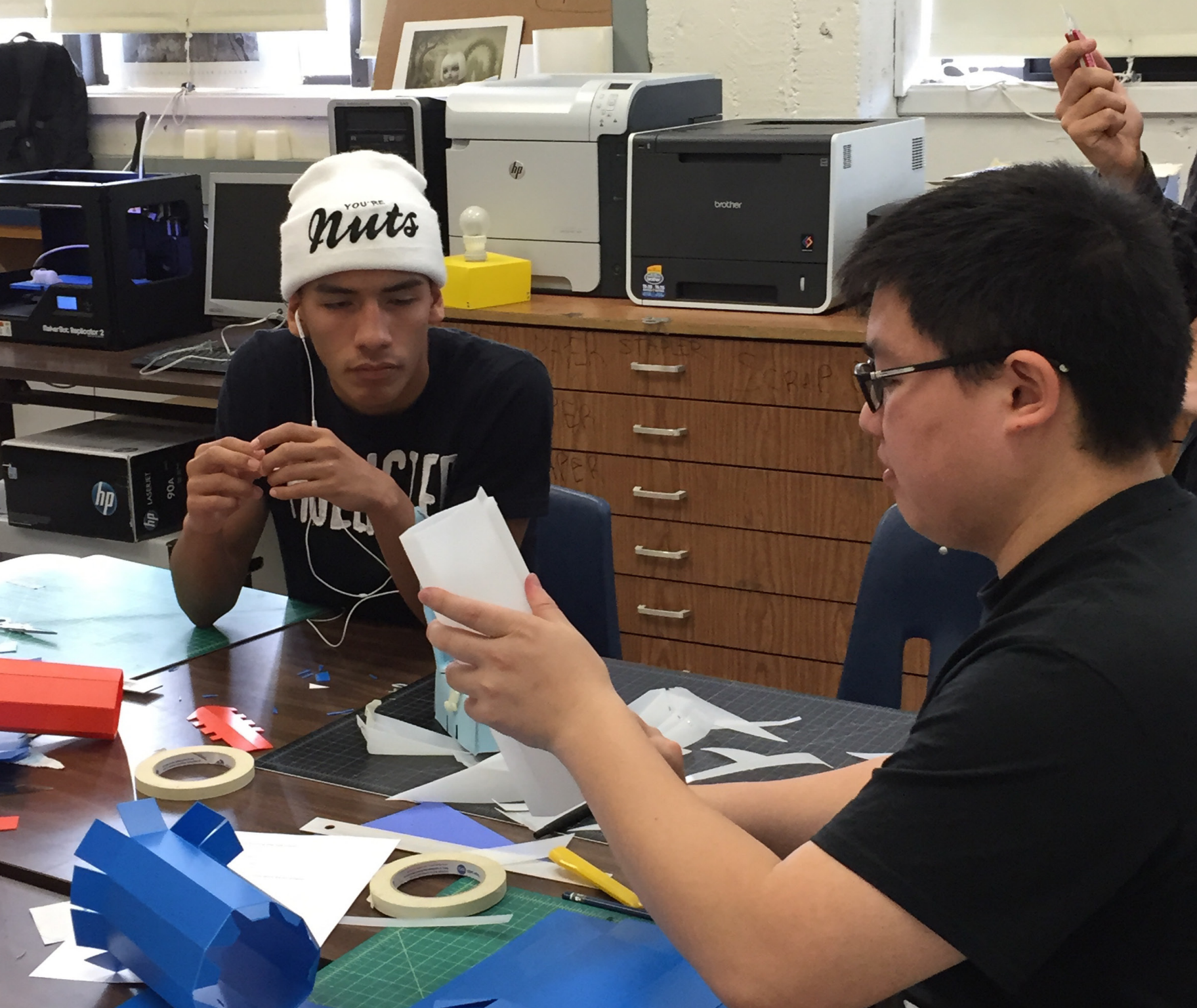
** Note: Supplementary presentation delivered*

ASSIGNMENT #1: EXAMPLES



Mentor Example:
Marlen Jaramillo

Student Example:
Kacey Medina



“My favorite part of the project was getting to know my mentor. He taught me how to be precise and neat when it comes to doing my work.”

- BYRON ALEXANDER
MISSION HIGH STUDENT

ASSIGNMENT #2: ORTHOGRAPHIC SKETCHES

Project Description:

Create a minimum of 10 different concept sketches inspired from your mood board about potential design for your lighting fixture.

Concepts should be drawn as orthographic drawings and must display all essential views (front, top, side). Draw your concepts big, no more than two different ideas per page.

Remember, the more sketches you have, the more successful your project will be!

Design Specifications:

Minimum of 10 sketches
Layout size: 8.5" x 11"

Tools + Materials:

Pencil (2B, HB)
Erasers
Paper

Group Critique: _____

Points: _____

** Note: Supplementary presentation delivered*

ASSIGNMENT #3: CONSTRUCTING A BASE

Project Description:

For this activity, students will design a base that is to hold the lighting components (bulb, ceramic fixture, wire). Lamp base should be designed in a way in which it could be easily integrated or attached to the overall structure.

Remember to use your lighting components when doing this exercise to test for fit, stability, and design. Measure your main components before beginning.

Tools + Materials:

Pencil (2B, HB)
Erasers
Paper
Railroad Board
Tape
Scissors
X-acto Knives
Ceramic lamp base
Light Bulb
Ruler

Group Critique: _____

Points: _____

** Note: Demo to be provided on cutting techniques*



“For me, my final prototype was successful because I got to make the lam that I wanted. I also got to apply all the new skills I learned from my mentor in the process.”

**- LIAM THIRTYACRE
MISSION HIGH STUDENT**

ASSIGNMENT #4: 3D SKETCH DESIGNS

Project Description:

Choose 1-2 of your orthographic drawings and construct paper models to express your ideas in 3D forms. With this exercise, you will begin to explore forms, concepts, and construction techniques.

Models must be built at full scale in order to best demonstrate proportion, form, functionality, and overall esthetic. Models may be rough, but should begin to define your design direction.

Once you have completed your model, refine and rebuild any parts that you and your mentor see need improvements.

Design Specifications:

2-3 Sketch Full Scale Models

Tools + Materials:

Pencil (2B, HB)
Erasers
Paper
Tape
Scissors
X-acto Knives
Railroad board

Group Critique: _____

Points: _____

ASSIGNMENT #5: PROTOTYPE 1

Project Description:

Based on your 3D sketch models, choose one of your concepts and refine and construct a full-scale model using railroad board. With your first prototype be sure to consider connection points— plan for tabs, brads, and so on— along with wire management, and your overall design drivers.

Be sure to integrate the lamp base exercise into your prototype as best as possible.

Use your lighting components (ceramic base, bulb, and wire) to test your prototype.

Design Specifications:

Full scale model
Must account for proper wire management
Must include integrated light bulb base
Must account for connection points or tabs

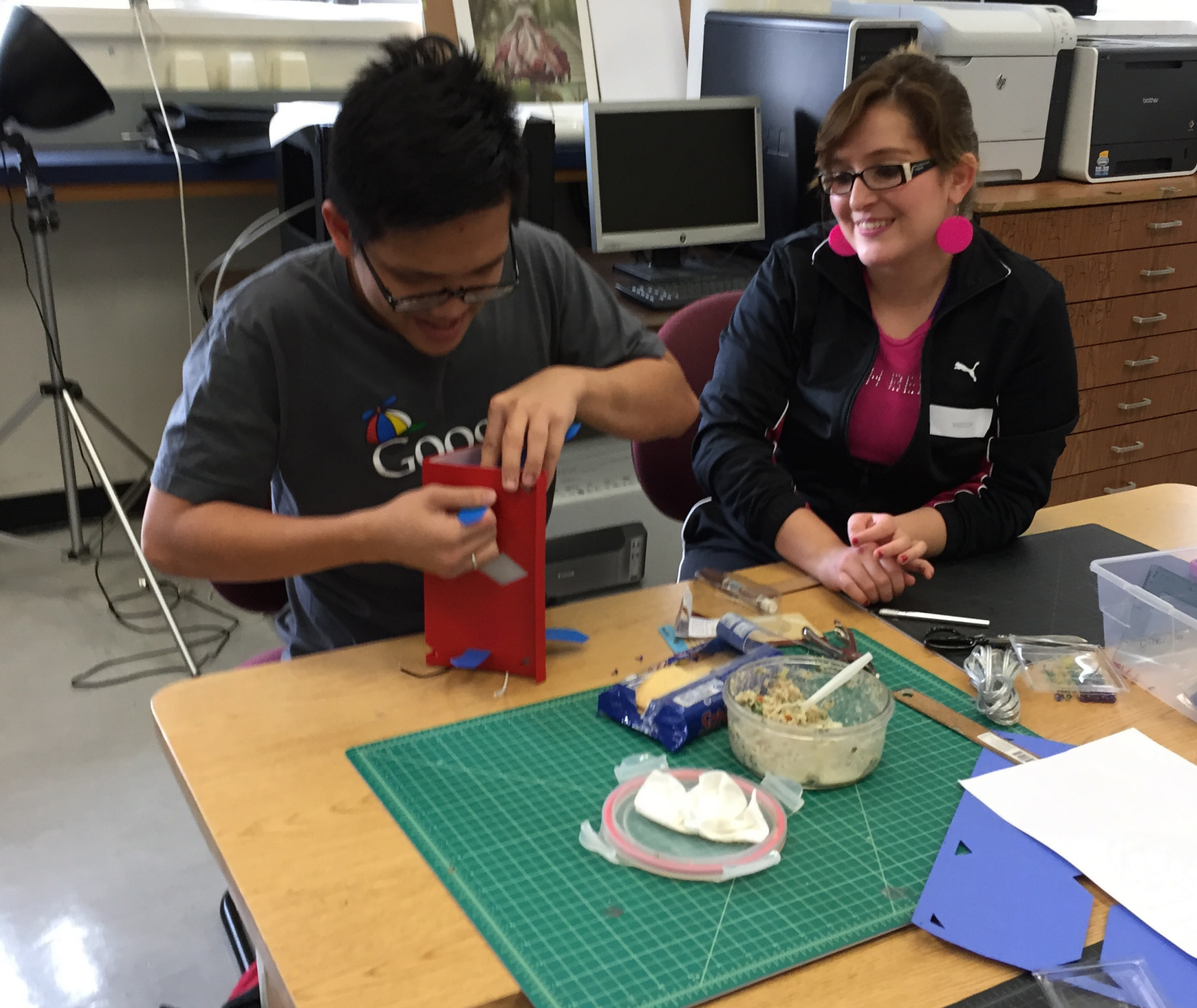
Tools + Materials:

Pencil (2B, HB)
Erasers
Railroad Board
Tape
Scissors
Rulers
X-acto Knives
Lighting components (ceramic base, bulb, wire)

Group Critique: _____

Points: _____

** Note: Supplementary presentation delivered*



“My mentor was very kind and helpful. She would always give me new ideas of how to make my lamp better.”

**- DAT VU
MISSION HIGH STUDENT**

ASSIGNMENT #6: HDPE PROTOTYPE

Project Description:

Congratulations, you're almost there! From the feedback you have received from your second prototype, refine any details and use your Railroad Board Prototype #2 as a template to cut and construct your final lighting fixture in HDPE.

Remember to account for all the components of the lighting fixture including: base integration, wire management, overall design, and transparency and light. Be sure to prepare to speak to your design drivers and decisions for the final group presentation.

Design Specifications:

Final Model: HDPE

Must account for proper wire management

Must include integrated light bulb base

Must account for connection points or tabs

Must comply with all initial design specifications

Tools + Materials:

Markers

Rubbing Alcohol

Paper/ Kitchen Towels

HDPE

Brads

Scissors

Rulers

X-acto Knives

Lighting components (ceramic base, bulb, wire)

Group Critique: _____

Points: _____

ASSIGNMENT GRADING RUBRIC

Creativity:

Student has excellent use and application of Elements of Design. Student approaches problems with multiple iterations, resulting in a variety of unique concepts and innovative approaches to their design solutions.

(1) Needs Work ____ (2) Good ____ (3) Great ____ (4) Excellent ____

Quality of Craft:

Student uses tools and technology correctly and very effectively. Student demonstrates a clear understanding of the material constraints. Project is very neat, clean, and well crafted with special attention to all details.

(1) Needs Work ____ (2) Good ____ (3) Great ____ (4) Excellent ____

Growth:

Student is consistent in their dedication to the project. Student always embraces the opportunity to improve and learn from previous mistakes.

(1) Needs Work ____ (2) Good ____ (3) Great ____ (4) Excellent ____

Effort/ Completeness:

All guidelines and specifications for project were met. The project was completed on time and demonstrates a high level of dedication.

(1) Needs Work ____ (2) Good ____ (3) Great ____ (4) Excellent ____

Meeting Deadline:

Student was able to meet the deadline and complete all the requirements for the specific assignment.

(1) Needs Work ____ (2) Good ____ (3) Great ____ (4) Excellent ____

Assignment Total Points:

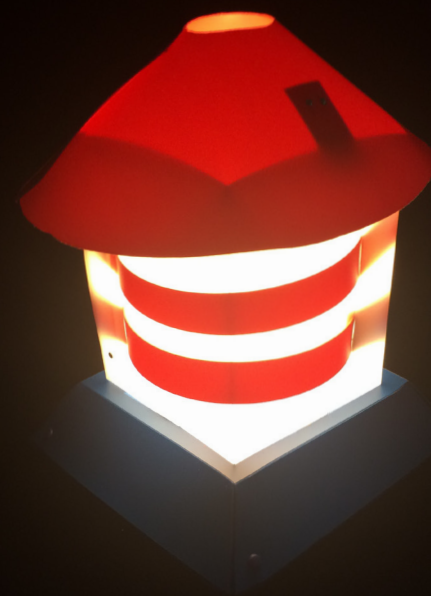
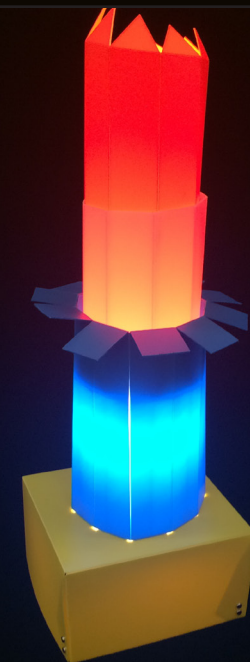
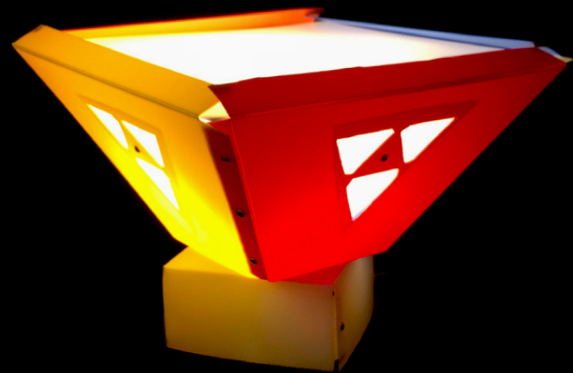
(D) 1-6 Pts ____ (C) 7-11 Pts ____ (B) 12- 15 Pts ____ (A) 16-20 Pts ____

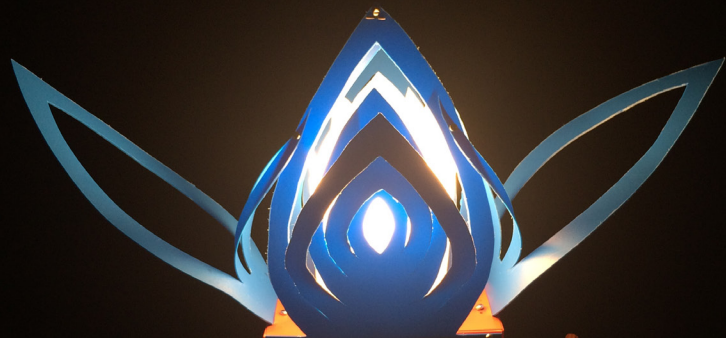
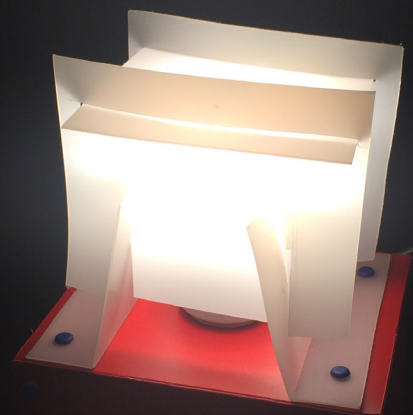


THE FINAL PROTOTYPES

After the completion of the project, Mission High School students are being given the opportunity to share their work with the rest of the community. Within the following weeks, some of the lighting structures made by the students will be displayed in the Asian Art Museum in San Francisco.

This is a true testament for all the hard work and dedication to the project that both the students and their mentors put in. Our mentor's goal is always to help the students succeed. In this experience, the high level of success is evident through the innovative, dynamic, and creative solutions to the design problem students produced.







CONCLUSION

As Student Director for the 2014 iDo Project, this experience has been an unforgettable one. As a graduating senior in the design program, my time at iDo has taught me so much more than I could have ever hoped for. Not only was I able to broaden my skills in the area of the design, it also taught me other essential skills I believe will further my career in design.

Even though I spent many hours of working on ideating, prototyping, developing, and delivering the project I always enjoyed every moment of it. Particularly at the end of the semester when students were truly happy with their projects and their final results. This program has and will always be one that I cherish because it gives us, university students, the opportunity to reach out to a population of underserved students and teach them a skill they would have otherwise not been exposed to. For a whole semester, we get to be a part of these students lives and gain so much more than just college credit for a class. Instead, I truly believe that each and every one of our mentors not only walked out of Mission High a better student, but a better person and member of our local community.