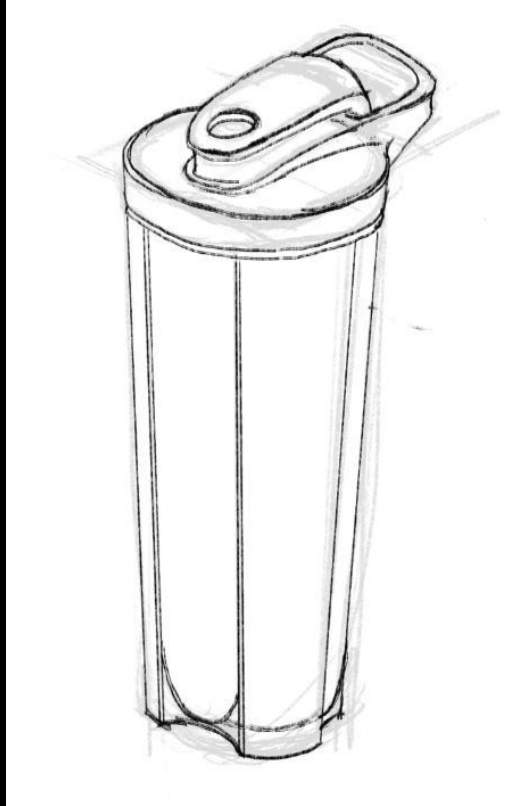
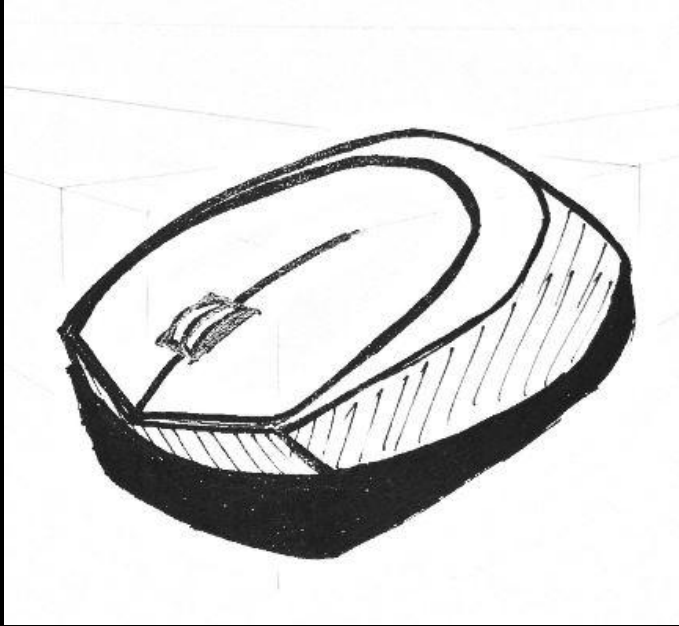


Product Design

OIDD 415/515
MEAM 415
IPD 515

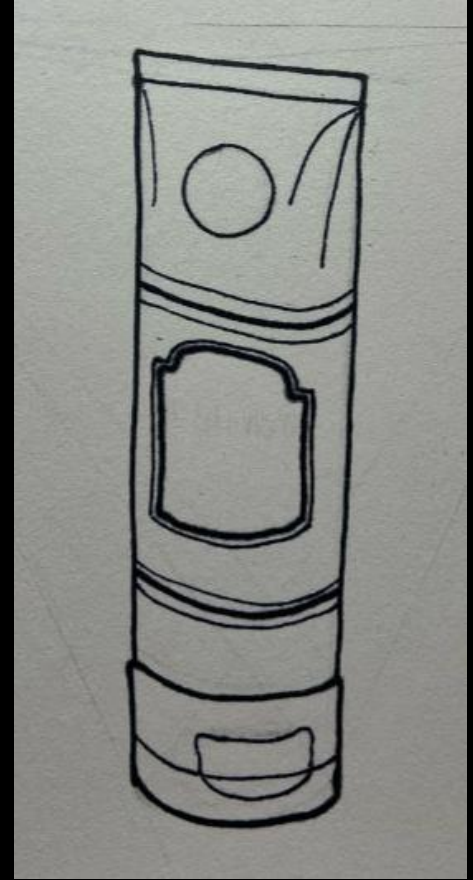
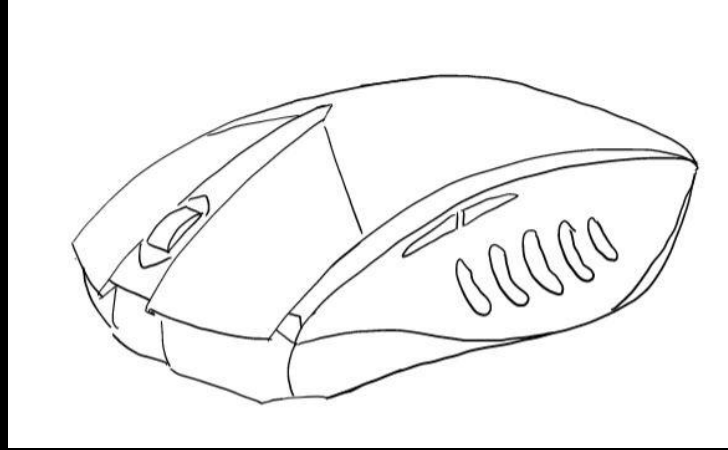
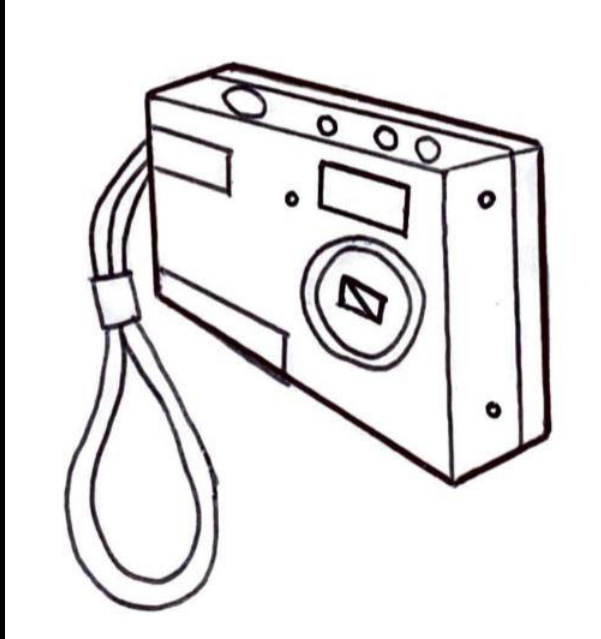
- **Intro to Fabrication**
- **Joints & Mechanisms**
- **Adhesives**
- **Advanced Laser Cutting**

Great work!



Shravan, Yiwei, Jessie

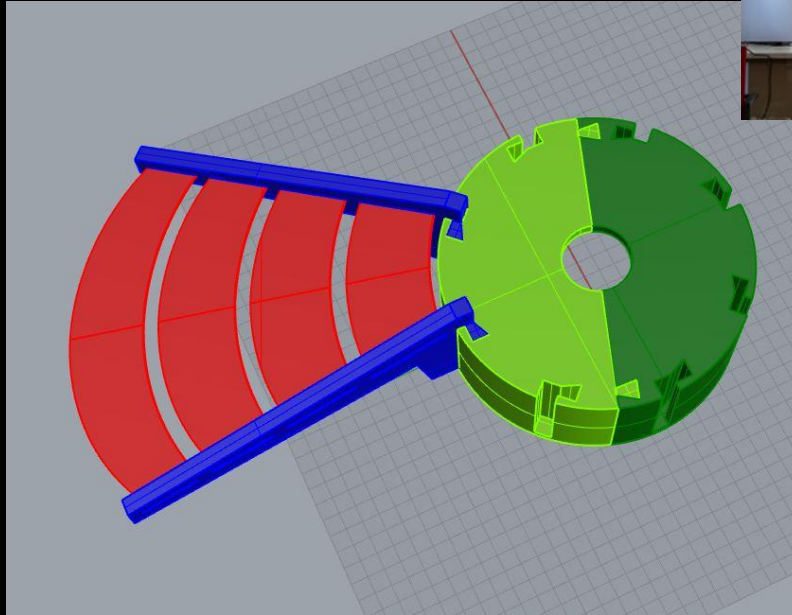
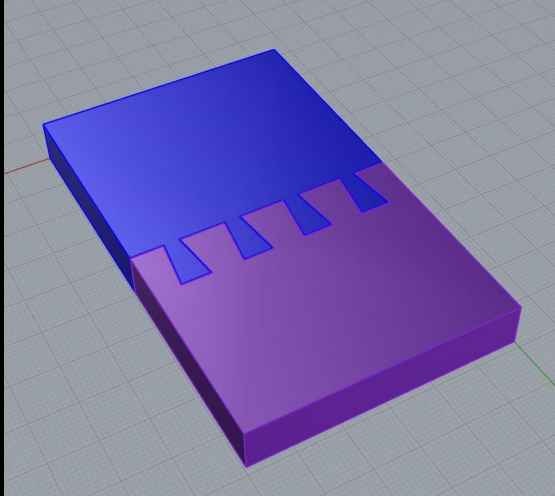
Great work!



Olivia, Ethan, Emily

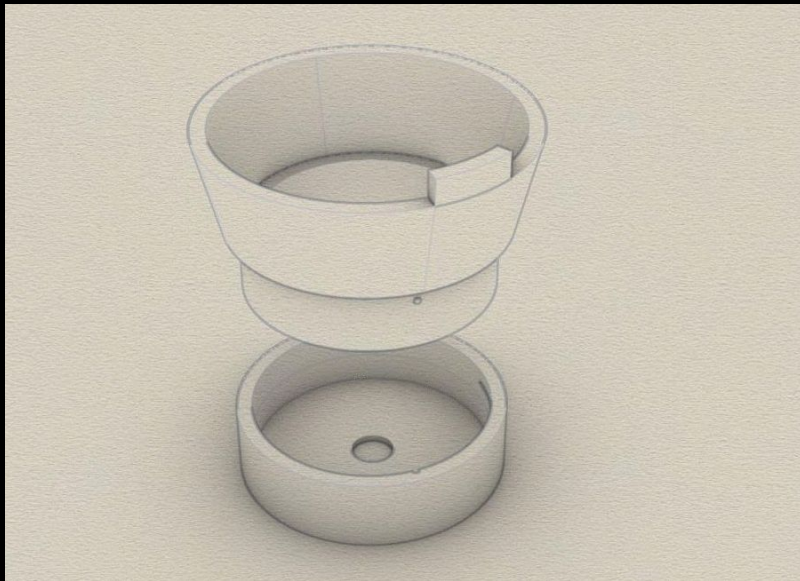
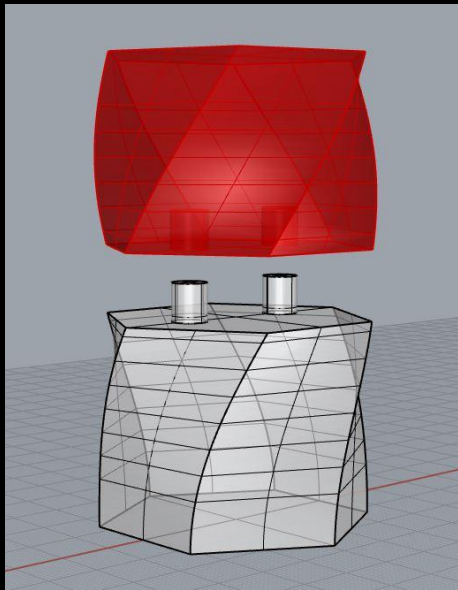
Modeling for Assembly

- Slots/Dovetail
- Leave a tolerance of 0.1 for ABS



Modeling for Assembly

- Pegs
- Key Mechanism
- Leave a tolerance of 0.1 for ABS



Adhesives - 3D Prints

- Sand surfaces to be bonded and wipe with a wet cloth, dry both sides thoroughly

Glue options:

- Two part epoxy
- Superglue - not all made equal!
 - Loctite gel is good
 - Zap-a-Gap with kicker spray
 - E6000
- All gluing should be done in a well-ventilated area - outside or under the fume hood!



Adhesives - Other

- Wood or MDF
 - Wood glue (Studios has some)
 - Use clamps if necessary, drying time can be a while
- Acrylic
 - Acrylic solvent
 - Use with proper ventilation!
- Fabric
 - Fabric glue
- Two different materials to each other
 - Two part epoxy
 - E6000 (magical stuff)



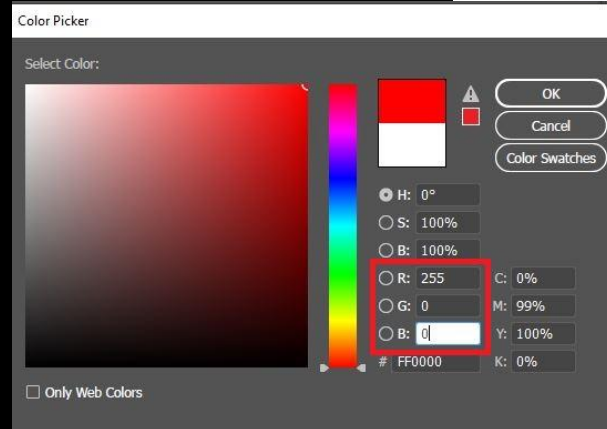
Laser Engraving

- The Studios made an exception for us with our stool project - future laser cutting requires making some easy adjustments in Illustrator
- Line colors
- Line weight
- Fill for raster engraving/etching
- Illustrator is available on the Studios computers
- Must pass Canvas quiz before can submit



Laser Engraving

- Cut
 - Red 255
 - Green 0
 - Blue 0
- Vector Etching (Outlines only)
 - Red 0
 - Green 0
 - Blue 255
- Raster Etching (Fills in)
 - Red 0
 - Green 255
 - Blue 0



Laser Engraving



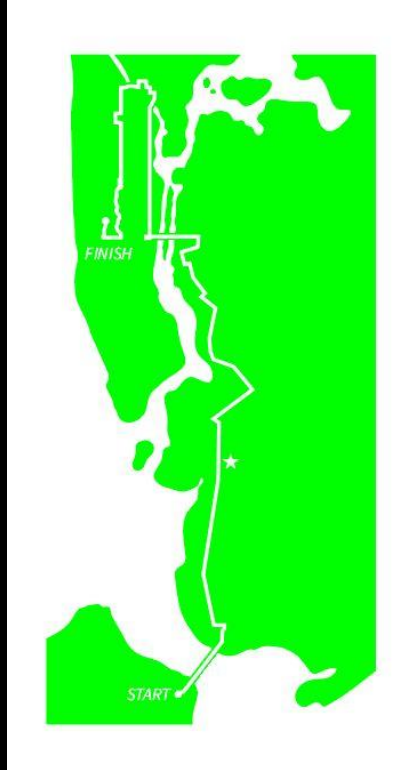
Laser Engraving



Rotary Engraving



Rotary Engraving



Contour Command

- Slices a polysurface or solid object into flat curves that can be laser cut and then reassembled

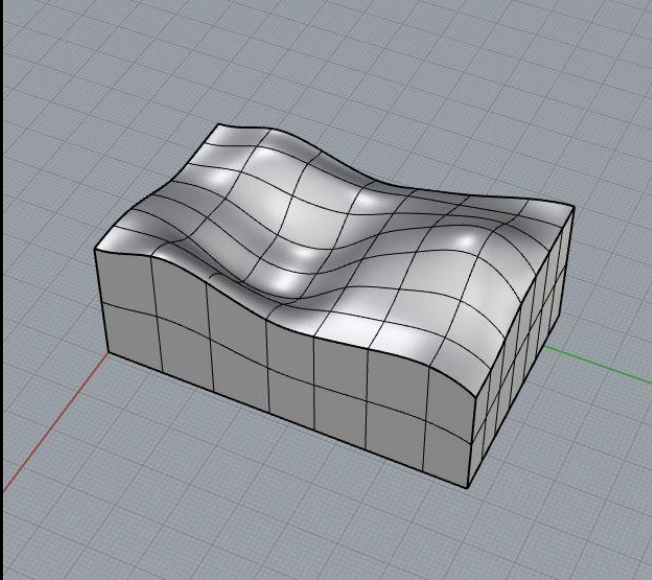


Contour Command



Contour Command

- Slices a polysurface or solid object into flat curves that can be laser cut and then reassembled (thinner material yields a better result)



Laser Cutting - Alternative Materials

All of these are possible but require permission from Taylor first!

- Cardboard
- Paper or cardstock
- Fabric or felt
- Leather
- Other colors of acrylic (from Everything Plastics)

Materials that can't be cut:

- Metal (but you can engrave through paint or powder coating)
- Glass
- PVC plastic sheeting and some other types of plastic sheeting

Vinyl Cutter

- Prints and cuts on durable vinyl (sticky backed) - model Roland TruVis



Vinyl Cutter



Fabrication Demos

- In Studios:
 - Laser Cutting with Camera
 - Spray Painting and adhesives
 - Mold making
- Upstairs:
 - Finish One Part and submit (check for Naked Edges!)
 - Work on Team Schematic Design

Homework

- One Part Due Next Week!
- Lecture: Sustainability and Service Design
- Sustainability and Lifecycle Analysis assignment, individual
- Next week is Alpha Prototype work day! Gather all necessary supplies. We will spend the first half of class prototyping.