

# Grading Criteria for Fab Zero at HoW

## General requirements

- All work in the Archive except for large videos (embed from YouTube or vimeo) or big STL files (embed from Sketchfab)
- Make sure you provide all **code** and **files** in original file format they were created so that they are editable (rhino, fusion 360, antimony, solid works...)

## Week 1 –

### Day 1 -

- Install required software
- Create a git hub repository for the documentation
- Create your web page in your git hub archive
- Pull and push from the archive
- Document what happened during the day with pictures

Assignment: Make your own webpage in Git

### Day 2 – Principles of 2D Designing & Vinyl Cutting

- Download the required software
- Design (or download a design) and make something with Vinyl Cutter
- Explain how you designed or where you downloaded the file
- Document the fabrication process with pictures
- Explain materials used
- Explain machine settings used
- Provide design files or link to design files

Assignment: Design and vinyl cut a sticker

### Day 3 - Principles of 2D Designing & Laser Cutting

- Download the required software
- Design (or download a design) and make something with Laser Cutter
- Explain how you designed or where you downloaded the file
- Document the fabrication process with pictures
- Explain materials used
- Explain machine settings used
- Provide design files or link to design files

Assignment: Make a press-fit assembly using laser cutter machine.

## Day 4 - Introduction to Programming & Circuit Design

- Download the required software
- Design and make a simple schematic using Fritzing software
- Make a circuit using Arduino and document the process with pictures
- Explain the electric circuit built and the coding.
- Provide design files or link to design files

Assignment: Traffic light simulation using Arduino

## Week 2 –

### Day 1 – Digital 3D Designing and 3D Printing

- Download the required software
- Design and make a simple 3D Object
- Explain about 3D Printing constraint in the 3D printer you have worked with
- Design and Print your 3D design
- Provide design files or link to design files

Assignment: Design a 3D Design that cannot be built using subtractive manufacturing process.

### Day 2 – Electronics Programming

- Make a circuit using Arduino, Inputs, Outputs and sensors, also document the process with pictures
- Explain the electric circuit built and the coding.
- Provide design files or link to design files

Assignment: Experiment different inputs and outputs using Arduino or build the circuit required for your project using the electronic components and Arduino.

### Day 3 – Molding, Casting and 3D Designing for Milling

- Review the safety data sheets for each of your molding and casting materials you have used at lab
- Review molding and casting equipment/ machine at lab and its safety considerations
- Provide design files or link to design files if any mold is designed

Assignment:

- Try a molding and casting process and document it

## Day 4 – Inventory Management and Project Management, Invention and Intellectual Property

- Develop a plan for dissemination of your final project

Assignment: Document the discussions at class.

## Week 3 –

### Project Development Week

Complete your final project, tracking your progress:

- What tasks have been completed, and what tasks remain?
- What is working? What is not?
- What questions need to be resolved?
- What will happen when?
- What have you learned?

Document a final project masterpiece that integrates the range of units covered, answering:

- What does it do?
- What did you design?
- What materials and components were used?
- How much did they cost?
- What parts and systems were made?
- What processes were used?
- What questions were answered?
- What worked? What didn't?
- How was it evaluated?
- What are the implications?

Prepare a project summary slide and a one minute video showing its

- conception, construction, and operation

Your project should incorporate

- 2D and 3D design,
- additive and subtractive fabrication processes,
- electronics design and programming using Arduino,
- system integration and packaging (optional)

Projects can be separate or joint, but need to show individual mastery of the skills, and be independently operable

Present your final project, weekly and group assignments, and documentation to the instructor.