Welcome to ProtoWorks!
### General Orientation Outline

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<th>Section</th>
<th>Outline</th>
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<tr>
<td>This Presentation</td>
<td>Shop info, training policies, guardians, &amp; badges</td>
</tr>
<tr>
<td>Hand Tools Training</td>
<td>Certification as a basic user</td>
</tr>
<tr>
<td>ProtoWorks Tour</td>
<td>See the space, equipment, &amp; tools</td>
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</table>
Stay until the end!

Orientation ends with a computer registration and safety quiz...

You must complete the registration and quiz to get your badge!
The real measure of [innovation] success is the number of experiments that can be crowded into 24-hours.

- Thomas Edison
First: Why ProtoWorks

ProtoWorks is a space where students are able to explore and experiment on their entrepreneurial ideas through initial physical prototyping.
Purpose

Foster student community for hands-on learning.

Provide tools and knowledge.

This is MIT.

Emphasis on modeling, prototyping, and validation.
Protoworks Community

- Creative makers, entrepreneurs, hobbyists from all disciplines
- One that values the space and takes good care of it
- Supportive and collaborative with other students
Access

ProtoWorks is open to:
- All MIT students – with particular priority to entrepreneurial pursuits

Unfortunately we cannot grant access to alumni or staff at this time
Hours

Weekdays: 12-8pm
1 guardian (minimum) on shift

Make sure when you arrive that you login so that we can see when there is peak need to potentially add hours!
Structure

Commander

Machine Masters
- Benchtop tools
- Laser cutter
- 3D printers
- Thermoformer
- Other Mill
- Electronics
- Hand tools

Guardians

Users (you!)
Guardians run the Galaxy!
Listen to them. Ask for help!

On-duty Guardians identified by badge:

Icons filled in black means able to train that machine / technology (icons explained in a couple slides)
<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Position</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connie Yee</td>
<td><a href="mailto:cyee4189@mit.edu">cyee4189@mit.edu</a></td>
<td>Community Manager</td>
<td></td>
</tr>
<tr>
<td>Michelle Chao</td>
<td><a href="mailto:mlchao@mit.edu">mlchao@mit.edu</a></td>
<td>Laser Cutting, Electronics</td>
<td></td>
</tr>
<tr>
<td>Sherry He</td>
<td><a href="mailto:hexin@mit.edu">hexin@mit.edu</a></td>
<td>Bench Tools</td>
<td></td>
</tr>
<tr>
<td>Ben Awuondo</td>
<td><a href="mailto:bawuondo@mit.edu">bawuondo@mit.edu</a></td>
<td>3D printing</td>
<td></td>
</tr>
<tr>
<td>Pushpa Prabakar</td>
<td><a href="mailto:pushpa@mit.edu">pushpa@mit.edu</a></td>
<td>Other Mill, Electronics</td>
<td></td>
</tr>
</tbody>
</table>
ProtoWorks Guardians

Gwen
Edgar
gwenf@mit.edu
3D-printing

AJ
Unander
aunander@mit.edu
Bench Tools

Fayed
Ali
fayed@mit.edu
Laser cutting
Training

ALL users must receive our training, training from another lab will not carry over

- For most machines, no prior knowledge required
- Sign up for training at Protoworks.mit.edu!
Signing up for training

Training

Note: Training will resume on a regular schedule during the fall semester.

In order to access and use ProtoWorks, students must follow the steps below, in order:

1. Attend General Orientation training at ProtoWorks. This is required regardless of your previous machining experience to access our space to learn specifics of our shop open hours, house rules, equipment, and machinery. 
   Schedule your ProtoWorks training here: https://example.com
   Please email us with your scheduling limitations so that we can accommodate you.

2. Attend additional machine-specific trainings to use certain equipment. To sign up for each of the advanced trainings, use the appropriate links below:
   - 3D printer training
   - Laser cutter training
   - Benchtop tools training
   - Additional advanced trainings and workshops to be provided soon, including the Other MH and Thermofisher

Note that even if you are already experienced in the advanced machinery, we require our members to either attend a training or to undergo our proficiency checklist with a training Guardian. Stay tuned for a published schedule of the Guardian proficiency training, which will be at their discretion if they have capacity to clear you during their regularly staffed time.

Email us at protoworks@mit.edu with questions, comments, or suggestions!

Protoworks.mit.edu

Time slots subject to mentor availability, but we have at least 1 slot per week per machine!
Badges

Your badges will be blank / gray until you get trained in each

USER

Super User

- Bench Tools
- Other Mill
- Electronics
- 3D Printers
- Laser Cutter
- Thermoforming
Check-in upon arrival

- Check in with the Guardian-on-duty
- Submit the short form on the iPad
- Obtain your badge from the Guardian
- Discuss any questions about your project with the Guardian

Note: Guardians may turn away users if the space is at capacity. Number of users to be at capacity ranges depending on projects.
Safety = #1

- PPE = personal protective equipment
- Maintain awareness at all times
- Ensure proper use and maintenance of the machines
- Promote a clean and collaborative culture
Safety = #1

• Most common machine shop injuries?

• Worst machine shop injuries?

• What should things sound like / not sound like?
### Machine Classes

**Class 1/2 may be used after certified w/o oversight**
**Class 3 requires oversight / buddy system (regardless of experience)**

<table>
<thead>
<tr>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low power hand / small bench tools</td>
<td>Medium power tools</td>
<td>Powerful portable / small bench top and industrial</td>
</tr>
<tr>
<td>- Dremel tool</td>
<td>- Jig saw</td>
<td>- Belt sander</td>
</tr>
<tr>
<td>- Soldering gun</td>
<td>- Cordless drill</td>
<td>- Band saw</td>
</tr>
<tr>
<td>- Glue gun</td>
<td>- Laser cutter</td>
<td>- Drill press</td>
</tr>
<tr>
<td>- Sewing machine</td>
<td>- Foam cutter</td>
<td>- Milling machine</td>
</tr>
<tr>
<td>- 3D printer</td>
<td></td>
<td>- Circular saw</td>
</tr>
</tbody>
</table>

Note: subject to change
<table>
<thead>
<tr>
<th>What you can use today</th>
<th>If Guardian can oversee:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Foam cutter</td>
<td>• Vinyl cutter</td>
</tr>
<tr>
<td>• Clay tools</td>
<td>• Jig saw</td>
</tr>
<tr>
<td>• Hand saws</td>
<td>• Other electronics</td>
</tr>
<tr>
<td>• Hammers</td>
<td></td>
</tr>
<tr>
<td>• Screwdrivers</td>
<td></td>
</tr>
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Materials & Storage

- Materials provided in Protoworks are meant for use in the space.
- You are not allowed to take materials to use elsewhere on campus.
- Material is not provided for the laser cutter (except for scraps).
- Desktop 3D printing is free.
- Stratasys Fortus printing is $5/in^3.
- There is NO storage in Protoworks, material left is subject to use or disposal (even if you label it...).
Resources

PW Website: http://protoworks.mit.edu

Websites for inspiration: grabcad.com, thingiverse.com, instructables.com

PW Guardians!
MIT Mobius

Download the App!
https://project-manus.mit.edu/mobius

- Find equipment
- Pay with Maker Money
- Maker Trust
Policies & Expectations

You MUST read through the PW policies packet

Includes all shop policies, rules, and expectations
Stay until the end!

Orientation ends with a computer registration:  
http://tinyurl.com/jylpate

Safety Quiz: http://tinyurl.com/hjod5ho

You must complete both to get your badge!