Full PI Checklist
Version 3.3 (October 2021)

Check off the tools below that you feel you have adequate knowledge of as you undertake the Provisional Period. Ask for help from the PI on duty. If they do not know how to help you ask the respective room’s Master (Tools denoted with a * require Master training). To complete the training guide, please learn all tools listed as “Required”, as well as the required number listed next to “General”. Learn as many of the tools labeled “Bonus” as you wish. Once you have completed this checklist, schedule a meeting with the Director of Operations to discuss becoming a full PI, and bring a printed out copy of this checklist with the tools you trained on indicated.

Name: ____________________________ Date: _______________________

3D Printer
(Tools denoted by * require training from the 3D Print masters - 3dprinter@inventionstudio.gatech.edu)

Required
- Formlabs Form 3 (Resin Printing)
- Types of parts not to print
- Unclogging the nozzle on Ultimakers
- Using PVA (and when to use)

Bonus
- FARO Arm*
- Using specialty/composite materials on Ultimaker S5
- Dual-extrusion (two-color) prints
Electronics

(Tools denoted by * require training from the Electronics masters - electronics@inventionstudio.gatech.edu)

Required

- Breadboards
- Oscilloscope and Waveform Generator

Bonus

- SMD soldering
- PCB Mill
- PCB Mill software (recommend KiCad or EAGLE)*
- Arduino IDE

Laser

(Tools denoted by * require training from the Laser masters - laser@inventionstudio.gatech.edu)

Required

- Rotary tool (on all lasers)
- FLP laser
- Cermark
- Print settings

Bonus

- DXF cleanup
- Dithering
- Importing (common troubleshooting)
  - DXF
  - PDF
Craftland

(Tools denoted by * require training from the Craftland masters - crafting@inventionstudio.gatech.edu)

Required

- Sewing (by hand)
- Vinyl Cutter
- Button Maker

Bonus

- Embroidery (Hatch and machine set-up)*
- Leather Sewing Machine*
- Serger*
- Foam cutting tools

Paint Booth

(Tools denoted by * require training from the Craftland masters - crafting@inventionstudio.gatech.edu)

Required

- Create a basic stencil on the lasers and use it
- Strip paint off of an object without damaging the object
- Post process and paint a 3D print (using XTC-3D or primer filler or bondo)

Bonus

- Air Brush*
Metal Room

(Tools denoted by * require training from the Metal masters - metal@inventionstudio.gatech.edu)

Required

☑ Horizontal Bandsaw (Do-All)
☑ Vertical Bandsaw (including changing speed)
☑ Cold-cut saw
☑ Changing belt on belt sander
☑ Buffing wheel (polishing)
☑ Dremel

Bonus

☑ Lathe*
☑ Angle Grinder
☑ Grinding Wheels
☑ Spot Welder
☑ Tapping and countersinking holes
☑ Sand Blaster

Waterjet

(Tools denoted by * require training from the Waterjet masters - waterjet@inventionstudio.gatech.edu)

Required

☑ ProtoMAX operation
☑ How to turn on hopper
☑ Handling brittle materials (low pressure)
☑ Clear faults (movement, pump, draining/filling water)
Clear garnet clog in hose

What files can be used (and what should NOT be used)

Bonus

- Waterjet Brick (for small parts) & Alternatives (sacrificial material)
- Saw Mode*
- Etch/Scribe*
- Clear garnet clog on ProtoMAX*

**Wood Room**

(Tools denoted by * require training from the Wood masters - wood@inventionstudio.gatech.edu)

**Required**

- Nail gun
- Table router
- Trim router
- Track saw
- Crosscut sled for table saw
- Drum sander
- Hand tools (jigsaw, drills, etc)

**Bonus**

- Wood lathe*
- Chisels and hand planes*
Metal CNC

(Tools denoted by * require training from the Metal CNC masters - cncmetal@inventionstudio.gatech.edu)

Bonus
- Vectrax Mill (manual operation)*
- Vectrax Mill (program simple toolpaths)*
- Tormach (operation and toolpath programming)*
- Pocket NC*
- EMCO*

Wood CNC

(Tools denoted by * require training from the Wood CNC masters - cncwood@inventionstudio.gatech.edu)

Bonus
- Shapeoko*
  - Basic navigation of Carbide 3D Software
  - Uploading a .svg file
  - Holding down material
  - Moving machine and set origin
  - Tool change

- CAMaster*
  - Startup and Shutdown
  - Holding down material
  - Move spindle and set origin
  - Explain what .gcode file is used for/where it comes from
  - Tool change