

Available Labs and Resources at Lehigh University

Wilbur Powerhouse Prototyping Lab (Wilbur Powerhouse 101)

This newly renovated lab is designed for the fabrication of metal structures as well as prototyping with foams and plastics. It has a large variety of tools available to all CERTIFIED students including a full compliment of welders (ARC, MIG, TIG, and Plastic). Additionally it has saws, sanders, grinders, drills and presses, a hydraulic Ironworker, milling and lathing capabilities and has compressed air available. A new vertical metal cutting bandsaw and large cabinet sandblaster are due to be installed by the mid September.

Hours, accessibility, and fees: *Various OPEN hours each week day/evening and is open on Sunday. Students wishing to use the lab must be certified. No cost except for material usage.*

Lab manager: Brian Slocum -- bc3@lehigh.edu

Rapid Prototyping (FDM) Machine (Wilbur Powerhouse Lobby area)

Located in the lobby area of the Wilbur Powerhouse is an FDM type Rapid Prototyping machine. Using an STL format file, the machine can create an ABS plastic prototype. Maximum size is 10.5" x 10.5" x 12". The technology is precise and creates relatively strong prototypes. Accuracy to within .01". Various colors of plastic are available and parts can be sanded and painted. Even though it is called "rapid prototyping" models can take several days to make.

Hours, accessibility, and fees: *There are no set hours for the machine. Students wishing to have a prototype run should e-mail their files to infdm@lehigh.edu. Cost is based on material usage and typically runs between \$75 and \$100. Files MUST be in STL format.*

Contact: Brian Slocum or Joseph Lala (Design Arts Graduate TA) -- infdm@lehigh.edu

3-D Scanner (Wilbur Powerhouse Lobby)

This recent acquisition is very exciting. The Cyberware head and neck scanner is designed to create a full color 3-D image scan of an object or person. The output is a digital point cloud or a colored surface image. The scanner is also capable of doing texture mapping. While installation is not quite complete, it is expected to be fully operational beginning September 20th.

Hours, accessibility, and fees: *There are no set hours for the scanner. Students wishing to have an object or subject scanned should schedule a time with Brian Slocum. There is no cost for the use of this resource.*

Contact: Brian Slocum -- bc3@lehigh.edu

Chandler-Ullman Wood Shop (Chandler-Ullman 101)

This high end woodworking shop is equipped with all the standard tools for creating furniture and wood prototypes. A planer, joiner, table saw, scroll saw, disc and belt sanders, oscillating spindle sander, pneumatic drum sander, large bed 36" belt sander, three bandsaws including a 24" resaw bandsaw, a router table, shaper table, and a plethora of other power tools and hand tools are available to all CERTIFIED students. The lab is staffed by students who are a great resource if you are unsure how to proceed with your project.

Hours, accessibility, and fees: *Various OPEN hours each week day/evening and is open on Sunday. Students wishing to use the lab must be certified. No cost except for material usage.*

Lab manager: *Brian Slocum -- bcs3@lehigh.edu*

Dravo Machine Shop (Packard Lab 272)

Located on the second floor of Packard Lab, this shop houses a large variety of machining tools, including Bridgeport mills, lathes, metal cutting bandsaws, drill presses, and a Haas CNC Milling machine. Students must go through a shop introduction before using the resources.

Hours, accessibility, fees: *The Dravo Student shop is open daily in the afternoons. Special arrangements can be made for weekend access if request is made in a timely fashion. There are no fees associated with this shop except for material use and special tooling.*

Lab manager: *Herman Baader -- Phone: 610-758-5759 -- hcb2@lehigh.edu*

HAAS Machine (Packard Lab 273)

This CNC milling machine is available for student use. Its precision computer controlled system produces machined parts to exacting tolerances.

Hours, accessibility, fees: *Students interested in using this resource must first contact Herman Baader. A program with toolpaths will have to be created by the student wishing to use the machine. Students without knowledge of Master CAM or similar software must find someone else to program the machine. There is no cost associated with the use of this machine aside from special tooling and material.*

Lab manager: *Herman Baader -- Phone: 610-758-5759 -- hcb2@lehigh.edu*

Calypso Waterjet Cutter (Packard Lab 169)

Part of the Lehigh University composites lab, the Waterjet is a very precise way of cutting a variety of materials to exacting standards. The waterjet can cut steel, stainless steel, aluminum, titanium, plastics, composite materials, wood, foam, just about anything.

Hours, accessibility, fees: Contact Bill Maroun with details of your project. He will arrange a time to meet with you and have your parts made. You must have a DXF file of the profile you need cut and the material you need it cut from. E-mail this file along with a description of the project to Mr. Maroun. There is a fee of \$1.33 per minute of operation plus a setup fee billed at \$0.44 per minute. The machine is fast, however, cutting time is a function of material, material thickness, and length of profile perimeter. Example: a 3" diameter circle out of 1/8" thick steel would take about a minute to cut.

Lab manager: William (Bill) Maroun -- Phone: 610-758-6566 -- wjm2@lehigh.edu

Laser Cutter (Chandler-Ullman 103)

Manufactured by Universal Laser Systems, this 60 Watt laser cutter and engraver can cut wood, plastic (up to 1" thickness), matte board, card board, rubber, fiberglass, etc. It can also etch glass and etch to depth plastic, rubber and wood. With a cutting precision of .001" it is extremely accurate. A variety of file formats can be printed. Any raster file, Photoshop document, or AutoCAD file will work.

Hours, accessibility, and fees: Use is by appointment only. Please make an appointment with the lab manager prior to needing the use of the equipment. Discuss plans for usage well in advance so you can be advised of what can and cannot be done.

Contact: Brian Slocum -- Phone: 610-758-2681 -- bc3@lehigh.edu

Spray Room (Wilbur Powerhouse 002)

This small room is located on the lower level of the Wilbur Powerhouse and has a ventilated spray booth for using solvent based glues and paints. It has several HVLP spray guns as well as a few airbrushes and touch-up guns. Please use this resource.

Hours, accessibility, fees: Access to the spray room is through the shop monitor on duty in the prototyping lab (Wilbur 101). Students wishing to use any of the spray equipment must get a quick training session by the Lab manager. Students must provide their own paints and solvents.

Lab manager: Brian Slocum – bc3@lehigh.edu

On campus Machining and Prototyping services

Packard Lab Machine Shop (Packard Lab 124)

This professionally staffed machine shop has the capabilities of machining just about anything. They work to exacting tolerances and take pride in the things they produce.

Hours, accessibility, fees: *This shop is not accessible by students. This is a job out situation only. Students wishing to take advantage of this resource must contact Dick Towne either in person or by phone or e-mail to set up an appointment to review the project. The shop requires drawings as well as a completed in-house work order. There is a cost for each job, but this is based on the project at hand. An estimate will be provided prior to the start of work. There is often a backlog of jobs in the shop so do not wait till the last minute!*

Lab manager: Dick Towne -- Phone: 610-758-4094 -- ret0@lehigh.edu

Lehigh University Design Labs

Utilizing the talented staff that monitors the Wilbur Powerhouse and Chandler-Ullman labs, the Design labs can create working prototypes from start to finish for teams with limited knowledge of tools and machines. The Design Labs have the capability to go from sketch to completed prototype.

Hours, accessibility, fees: *This service is offered at a reasonable cost. Detailed drawings and or sketches will need to be presented to Brian Slocum for review and bidding. The cost for each job is based on time and materials required as well as level of skill required. Due to time constraints, a limited number of jobs will be undertaken, so, get your request in early!*

Contact: Brian Slocum -- bcs3@lehigh.edu

Other campus resources

“Lens Machine” – (Whitaker Lab)

A predecessor to modern SLS technology, this technology creates metal prototypes from a 3-D computer file.

5-Axis CNC router – (ATLSS)

This LARGE bed router can create fully three dimensional objects from foam or similar easily machinable material. This router is large enough to do a full scale car prototype.

Off campus resources

ProtoCAM – Specializing in SLA rapid prototyping. 24 hour turn around.

Trexler Industries – Laser cutting of metal