

Mill and Lathe

The purpose of this guide is to outline some of the basic knowledge for using the tooling in the Discovery Learning Laboratory.

The outcome of this qualification process is to have a safe and intact operating environment. THIS INSTRUCTION WILL HELP YOU KEEP YOURSELF SAFE IN A HAZARDOUS ENVIRONMENT. THIS TRAINING DOES NOT MEAN YOU ARE A MACHINIST!

REQUIRED PROPER DRESS

T-shirt or short sleeved shirt, long pants, closed toed shoes, safety glasses (found in shop)

Basic Safety and Processes

Where is the first aid kit?

Describe proper clothing requirements.

Explain the prohibition of Alcohol or Drugs.

Describe the procedure for dealing with injury.

What is the procedure for dealing with health issues such as heart attack, stroke or latex allergy?

Where are the fire extinguishers?

Describe chemical or hazmat material spill containment.

Describe how to deal with a spill of a selected material.

What are the proper chemical storage procedures of flammables and oils?

What are the shop hours of operations?

What is the two person rule?

What materials may be worked within the machine shop?

What are the hazards of any machining process?

Mill Operations

Name and describe the parts of a mill.

What are some of the hazards of using the mill?

Observe use of the mill.

What are the three axis of table movement?

How may the table be locked down?

Show the methods of adjusting the speed of the mill.

Demonstrate how to properly adjust the speed of the mill for a selected metal.

Show how to install a tool.

Show a proper setup of a work piece in a vise.

Describe how to change a tool.

What is a datum?

Show how to use an edge finder.

Show how to use the DRO. (Digital Read-Out)

Show how to square a block.

What is Surface Finish?

What is the purpose of lubrication?

What are the differences between each of the mills in the shop?

Where is all of the mill tooling kept?

4 – Milling Machine 1 Duration 50:33

<http://techtv.mit.edu/videos/127>

5 – Milling Machine 2 Duration 1:03:33

<http://techtv.mit.edu/videos/84>

6- Milling Machine 3 Duration 46:33

<http://techtv.mit.edu/videos/143>

7 - Milling Machine 4 Duration 45:33

<http://techtv.mit.edu/videos/183>

Lathe Operations

Observe operation of the Lathe

Be able to name all the parts of a lathe.

Where is lathe tooling kept?

Describe the different types of chucks and where they are stored

Show how to install a chuck.

Demonstrate how to install a taper drill.

What is a live center?

What is a center drill?

What is a boring bar?

Demonstrate the proper selection of feed and speed.

Demonstrate the installation of a tool in the tool post.

Show how to change the speed of the chuck.

Show how to change the speed of the carriage.

8 – Lathe 1 Duration 45:02

<http://techtv.mit.edu/videos/144>

9 - Lathe 2 Duration 47:33

<http://techtv.mit.edu/videos/134>

10 - Lathe 3 Duration 34:32

<http://techtv.mit.edu/videos/172>