

Using a Vertical Knee Mill & Engine Lathe to Bring Precision to Your Woodworking with Michael Koppy

August 3-7, 2020

Class Syllabus:

Day One

Discussion

- Buying a vertical milling machine
- Cutter selection
- Types of tooling
- RPM's for tooling
- Tolerance of measurements

Demonstration

- Operation of the vertical milling machine
- Sweeping in the head (students will demonstrate)
- Indicating the vice (students will demonstrate)
- Holding a part in the vice
- Working with backlash
- Holding a part on the table
- Picking up an edge (paper, edge finder)
- Picking up a prick punch mark
- Layout
- Drill press
- Sharpening a drill bit by hand

Projects

- Adjustable Jig for drilling shelving holes
- Marking gage

Discussion

- Buying an engine lathe
- Types of Tooling
- RPM's for work

Demonstration

- Mounting chuck
- Lathe cutting tools
- Drilling center holes
- Machine precision dimensions
- Hand tools on the lathe

Day Two

Demonstration

- Using Mic and calipers
- Rules
- Knurling on a lathe
- Tapping on a mill
- Using a vice stop
- Sharpening a lathe tool*
- Reaming

Projects

Drill jig for drawer fronts
Trammel points

Day Three

Demonstration

Milling multiple parts
Cut off and grooving on the lathe
Collet blocks
Rough milling
Four jaw chuck
Boring

Day Four

Demonstration

Squaring a block (all six sides)
Taper turning
Face milling (students will demonstrate)

Projects

Mini square

Day Five

Demonstration

Milling long parts
Rotary table
Transfer gages*

Tools needed by students

Safety glasses with side shields
6-inch rule ½ wide
Square head with ruler
Scribe
Small steel hammer
Prick and center punch
6" or 8" smooth file
Bring any dull drill bits you would like to sharpen ½ and under (not brad point)

Call me at (218) 522-0309 if you have any questions

Michael Koppy