

# INT113 LAB 3.1: OFFHAND GRINDING AND SURFACE GRINDING

Student Name: \_\_\_\_\_

Student ID: \_\_\_\_\_

## LAB OUTCOMES:

Upon completion of this lab procedure, the student should be able to:

1. Use a pedestal grinder to shape a workpiece.
2. Use a surface grinder to finish the surface of a workpiece.

## LAB PROCESS:

Before entering the machine shop, ensure that you have observed all required safety procedures:

- Safety glasses on
- Closed-toed shoes
- No rings or other jewelry
- No loose-fitting clothing
- Long hair pulled back
- Not under the influence of any substance that dulls reaction time or judgement

## Part 1:

1. Review the print on the last page of this lab. You will be starting with your 1.5" x 1.5" x 1.5" steel block from the Sawing Lab 112-2.2.
2. Check the pedestal grinder.

Do both wheels appear sound, with no cracks or significant wear around the center hole?

Does either wheel show signs of loading or glazing?

Adjust the tool rests to be approximately 1/16" from the wheels.

Ensure that the nuts holding the wheels in place are snug, but not over-tightened.

Ensure that all guards are in place.

3. Begin grinding the workpiece. Ensure that all sharp edges are smoothed. Keep the work on the front of the grinding wheel, not the sides. Carefully move the work back and forth across the wheel.
4. Use the grinding wheel to create the small radius on two of the workpiece edges.
5. Use the grinding wheel to create the 45° angle on one edge.
6. Measure your workpiece. Are you within tolerance for this part?

## Part 2:

1. Carefully clean your workpiece.
2. Check the surface grinder. Does the wheel need dressed?
3. Pick the side of your workpiece that will be your first reference side. Mount the workpiece in the vise with this surface facing up.
4. Use a cut of 0.0005" on this surface.
5. Carefully remove the workpiece from the chuck and remove any burrs.

Check your workpiece. Does this surface show any scratches or waviness that would indicate problems with the surface grinder?

6. Remount the work to machine an adjacent side. Grind this surface using the same steps as the first.

7. Remove, clean, and remount to grind the surfaces opposite the two reference sides.
8. Repeat for the remaining two parallel surfaces.

**Questions:**

1. Describe the difference in finish between the original rough-sawn block, the edges that were ground using the pedestal grinder, and the surfaces ground using the surface grinder.

*The outcomes of this exercise (listed on page 1) specifies the skills that the Student must demonstrate to the Instructor. Once the Instructor is satisfied with the demonstration of Knowledge & Skills by the individual student, they will sign this document (for the student), then enter a 100% into the Hands-On Lab grade in Sakai.*

I verify that this student has completed all of the requirements of this Hands-On Assessment:

Student Name: \_\_\_\_\_

Faculty Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**DOL DISCLAIMER:**

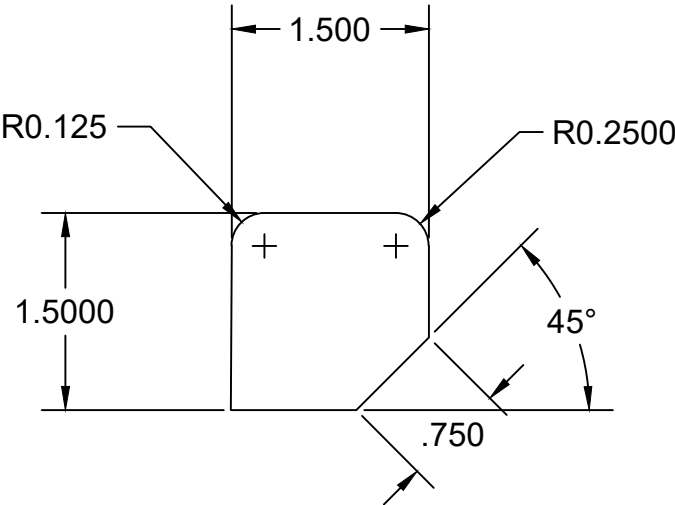
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Notes:  
Break all Sharp Edges

Northwest State Community College  
Off Hand Grinding Project #OHG00001



Northwest State Community College	Off Hand Grinding	
	Designer: TP	
Tolerances .x +-.032    .xxx +-.005 .XX +-.015   Angle +-. 1 DEG Fraction +-. 1/64	Material Cold Roll Steel	
	Scale Full	Sheet 1 of 1
	05/05/2022	DWG # OHG00001