

# INT114 LAB 3.1 – PROTOTRAK MILLING

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

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

## LAB OUTCOMES:

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

1. Use a Proto-Track controller to machine a part

## 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. Your instructor will provide the workpiece.
2. Check the alignment of the vise. Does it need to be adjusted? Ensure that the vise is clean of any chips or burrs.
3. Review the ProtoTrak manual to become familiar with the codes used.

### Part 2:

1. You will be drilling two holes and milling a slot using the ProtoTrak controller. Locate the appropriate cutting tools.

What are these?

2. Secure your workpiece in the vise.
3. Use an edge finder to locate your origin point. Set the zero position in the ProtoTrak controller.
4. Enter Program Mode.
5. Clear any existing program in the ProtoTrak.
6. Program the first hole.
  - a. What event will you use?
  - b. Will you use incremental or absolute positioning?
  - c. What will your X and Y position be?
7. Program the second hole.
  - a. What event will you use?
  - b. Will you use incremental or absolute positioning?
  - c. What will your X and Y position be?
8. Program Events 1 and 2 to repeat.

Why are you repeating the two drilling events?
9. Program the slot. You will want to first drill a hole at the start of the slot first to provide a starting point for your cutting tool.

- a. What event will you use?
  - b. Will you use incremental or absolute positioning to reach your slot start point?
  - c. What will your beginning X and Y positions be?
  - d. Will you use incremental or absolute positioning to reach your slot end point?
  - e. What will your ending X and Y positions be?
  - f. What is your tool diameter?
10. Use the LOOK command. Does the preview in the ProtoTrak match the print? If not, which events are incorrect? Make any corrections needed.

**Part 3:**

1. Mount your first cutting tool in the spindle.  
  
What is this?
2. Run the first step of the program.
3. If needed, change the cutting tool. Run the second step of the program.
4. If needed, change the cutting tool. Run the third step of the program.
5. If needed, change the cutting tool. Run the last steps of the program.
6. Measure your workpiece. Does it match your print?

**Questions:**

1. Did this take more or less time than it would have to manually mill this part?
2. What are the advantages of computer controlled machining?
3. What could have allowed you greater efficiency in milling this part?

*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: \_\_\_\_\_

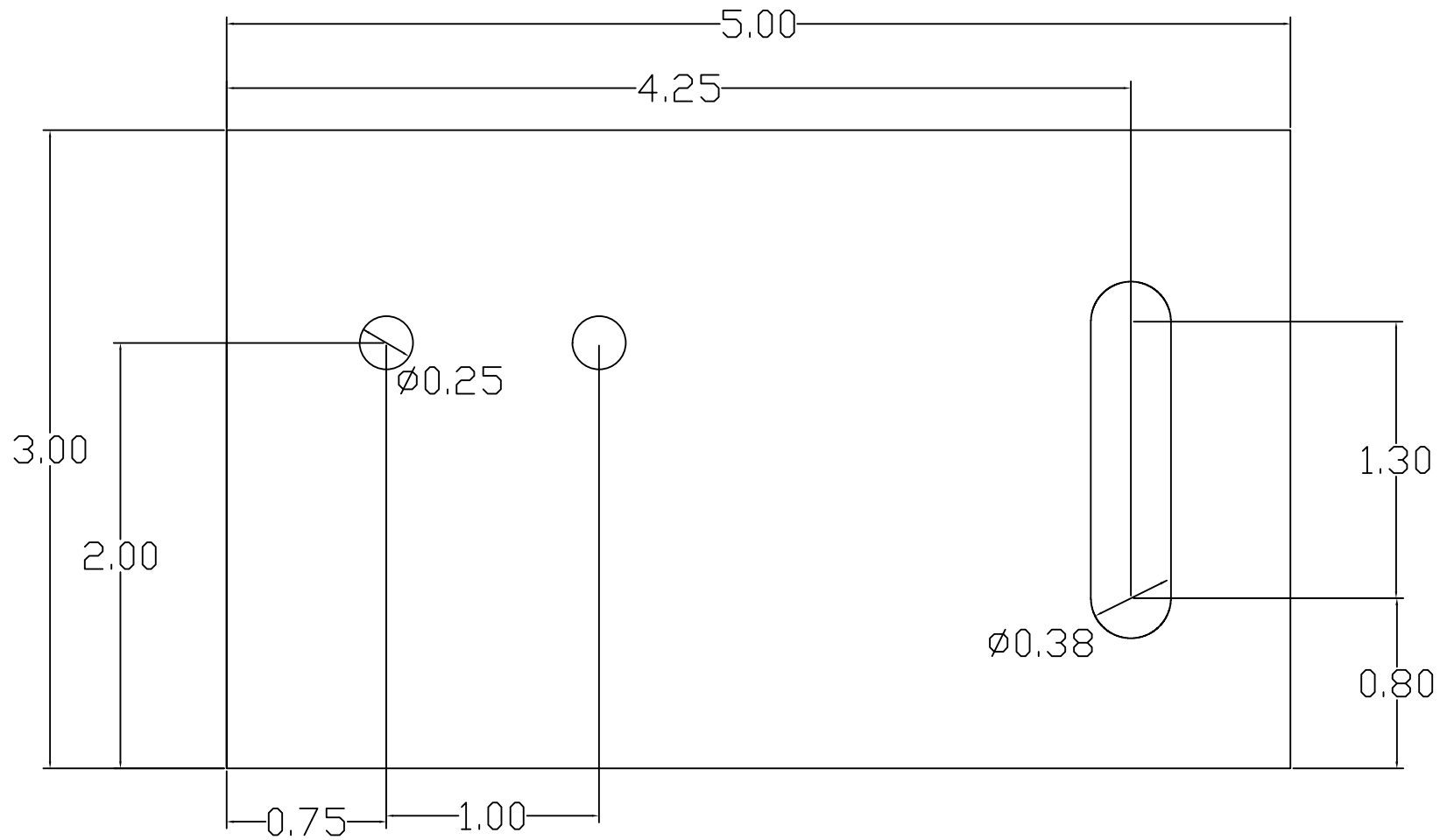
Faculty Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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IND-140-010  
HQA Milling Module 5

Proto-Trak Edge exersize in  
Programming  
Pg 18 in the Edge manual  
HQA for Module 5 milling