Pop Up Class – Basic Mill

1. Class Overview
   o Description
     This class will give the student the basic understanding of the Milling machine Safety, Components, and accessories.
   o Prerequisites
     Shop Safety
   o Anticipated Class Size – 10 max
   o Class Duration – 1 ½ hours
   o Material Needed
     None

2. Safety
   Machine Shop dress code and safety glasses

3. Educational Objectives
   o Students will be able to:
     ▪ Will be able to identify the major components and common accessories of the milling machine.
     ▪ Be able to turn machine on and adjust spindle speed
     ▪ Complete a tool change
     ▪ How to clamp and unclamp a part

4. Class Format
   o Pre-Class activity
     i. None
   o In-Class activity
     i. Components of the Milling Machine
        1. Base
        2. Knee
        3. Vertical Traverse Lever
        4. Cross feed hand wheel
5. Table traverse hand wheel  
6. Table  
7. Column  
8. Spindle  
9. Quill feed hand lever  
10. Ram  
11. Head  
   a. High-low range switch  
   b. Variable speed dial  
   c. Spindle brake  
   d. Quill feed selector  
   e. Quill stop knob  
   f. Micrometer adjustment nut  
   g. Feed reversing knob  
   h. Feed control lever  
   i. Quill lock  
   j. Power feed transmission crank  
   k. Hi-neutral-low lever  
   l. Speed change wheel  
   m. Draw bar  

ii. Common milling machine accessories  
   1. Fixtures  
   2. Attachments  
   3. Tooling  

iii. Activity  
   o Load and unload tools from mill following proper safety procedures  
   o Clamp part and unclamp part from machine  
   o Turn machine on and adjust speed to include changing gears  
   o Safety when operating the milling machine  

iv. Assessment  
   o Identify the major components of the milling machine.  
   o Demonstrate the proper procedure to load and unload a tool  
   o Demonstrate the proper procedure to adjust the spindle speed  
   o Demonstrate how to clamp and unclamp part  

5. Evaluation  
   o Students fill out an evaluation on the content, learning objectives, and instructor.