

## **Basic Safety Rules – Manual Machining**

1. Safety is Non-Negotiable!
2. No student is allowed in this lab without manual machining lab instructor present.
3. Long-hair must be properly secured and tied back safely. Keep your hair away from moving parts.
4. Closed-shoe footings are required in the lab at all times. Wear a belt with your trousers to prevent tripping. No saggy pants allowed in this lab. No loose clothing is permitted when operating any power equipment.
5. Protect your eyes. Wear safety glasses with side shields in the correct position covering your eyes at all times once you arrive at the machines. You must supply your own safety glasses.
6. Clean your work areas (safely) before you leave. Do not leave until instructor inspects your machine.
7. Use caution and be respectful of others.
8. Don't run your machine until you understand the proper operation and safety procedures for that machine.
9. Don't engage any levers on any machine unless you know exactly what action that lever performs. Ask your instructor for help when you need it.
10. Don't get caught in moving parts. Remove watches, rings, jewelry, neckties, and loose fitting clothes.
11. Gloves are easily caught in moving parts. They may be necessary in the lab at times for cleaning out the metal shavings, but take them off before you turn on any machine.
12. Loose objects can become flying projectiles. Remove all loose objects from the machine before starting, such as wrenches, rags, chuck keys, extra tooling, etc.
13. Never operate any machine after taking strong medication, using non-prescription drugs or consuming alcoholic beverages.
14. Safeguard the cutting zone, or the "Point of Operation", by using safety shields, special precautions, etc.
15. Stop the spindle completely before changing tools, loading or unloading a workpiece or clearing away chips. Use a parts brush. Never use your hands.
16. Stop the spindle completely before you adjust the workpiece, fixture or take any measurements or open any safeguards or covers. Never reach around a safeguard.

17. Prevent workpiece and cutting tools damage. Never start the machine when the cutter is in contact with the workpiece
18. Prevent cutting tool breakage. Use the correct feed rate and spindle speed for the job. Reduce feed and speed if you notice unusual noise (chatter) or vibration.
19. Dull and damage inserts produce a rough appearance on your workpiece and makes it difficult to obtain accurate tolerances of the part being machined. Inform your instructor if you notice that a cutting tool with a chipped or broken insert.
20. Prevent objects from being thrown from the lathe. Make certain the tool post clamp is always tight before attempting to cut with a tool. A loose tool will break the insert and damage your part.
21. Prevent objects from being thrown from the milling machine. Never attempt a cut unless the workpiece has been secured with clamps on the mill table. Keep clamps clear of the cutting tools path.
22. Prevent carriage on lathe from machine from moving unexpectedly. Always disengage power feed when not being used before stopping the machine.
23. Avoid putting your hands and fingers between the toolpost & workpiece. Avoid touching a spinning chuck on the lathe. This could cause broken bones or serious injury.
24. Avoid listening to music with earphones during the lab. Communication is important at all times.
25. Exercise caution when tightening a cutting tool in the chuck using a chuck key. The chuck key can slip out of the chuck, causing deep cuts on your hands and fingers.
26. Never leave a chuck key in the lathe 3-jaw chuck after using it to loosen or tighten the chuck. Always keep your hand firmly on the lathe chuck key while it is in the chuck and remove it before starting the lathe. Failure to remove the chuck key when starting the machine will result in the chuck key being thrown directly at you as a fast moving projectile which results in serious injury to you or someone else.
27. Prevent fire. Keep flammable liquids and materials away from your work area surrounding the machine. Familiarize yourself with the locations of all Fire Extinguishers and exit doors.
28. If you see oil or other liquids on the floor, take time to clean it up or notify your instructor. This can cause someone to slip and fall.
29. Always use a Roller Stand on hollow spindle end of the lathe when metal stock extends out past 12" away from lathe. This is to prevent stock from experiencing metal fatigue and whipping around and striking the operator or someone else nearby.

*I agree to abide by the safety rules as stated on page 1 and 2.*

Class Period: Day & Time \_\_\_\_\_

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

\_\_\_\_\_  
*Print your name here*

\_\_\_\_\_  
*Sign your name here*

*(Return all pages to instructor. Do not unstaple. Leave this handout open to page 3.)*