Safety Precautions when using Drill Press or Dremel

When using the **Dremel** in the Mechtronics Lab **always** make sure to **wear safety glasses** even if you wear eye glasses. Also there are a pair of leather gloves in the lab that you should wear when using the dremel.

When using the **Drill Press** in the Mechatronics Lab **always** make sure **to wear saftey glasses** even if you wear eye glasses. **DO NOT wear gloves** when working with the drill press. You could get the glove's material wrapped in the drill bit and injure your hand. In addition to wearing safetly glasses, there is a plastic sheild covering the drill bit that you should always use when using the drill press.

Dremel Tool Safety

The Dremel is a rotary tool which spins at very high rpm's (rotations per minute). It is a multipurpose tool with many attachments that can easily be changed to suit many different types of jobs. .

Dremel Tool Safety Rules

- Mandrel mounted wheels, sanding drums, cutters or other accessories must be fully inserted into the collet or chuck.
- Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, sanding drum for cracks, tear or excess wear.
- Position yourself and bystanders away from the plane of the rotating accessory.
- Depending on application, use face shield, safety goggles or safety glasses.
- Anyone entering the work area must wear personal protective equipment. Fragments of workpiece or of a broken accessory may fly away and cause injury beyond immediate area of operation.
- Never hold a small workpiece in one hand and the tool in the other hand while in use. Clamping a small workpiece allows you to use your hand(s) to control the tool.
- Never lay the power tool down until the accessory has come to a complete stop.
- Do not operate the power tool near flammable materials. Sparks could ignite these materials.

Kickback and Related Warnings - Kickback is a sudden reaction to a pinched or snagged rotating wheel, backing pad, brush or any other accessory. Kickback is the result of power tool misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below.

- Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces.
- Avoid bouncing and snagging the accessory.
- When using rotary files or cut-off wheels, always have the work securely clamped. These wheels will grab if they become slightly canted in the groove, and can kickback. When a cut-off wheel grabs, the wheel itself usually breaks.
- Do not grind with the side of a cutoff wheel.
- Do not attempt to make an excessive depth of cut.
- Never attempt to remove the cut-off wheel from the cut while the wheel is in motion otherwise kickback may occur.
- Do not restart the cutting operation in the workpiece. Let the wheel reach full speed and carefully re-enter the cut.

Drill Press Safety Rules

The drill press comes in a floor or bench-mounted model. It has a motor driven head that has a chuck that accepts bits or cutters. It also has an adjustable table on which the work is mounted. It is operated by pulling a rotary lever which lowers the drill bit into the material. To avoid accidents, the following operational safety rules must be observed by everyone working on the KCWG Drill Press. Failure to follow the safety rules will result in a loss of shop privileges.

Start with a Risk Assessment to ensure a safe work area:

1. A two foot perimeter around the drill press should be kept clear of people, debris and sawdust that impair traction or footing to avoid slips and falls.
2. Safety glasses with side shields or a face shield must be worn. Hearing protection should be worn.
3. Remove loose fitting clothing, jewelry, and tie back long hair.
4. Give the work your undivided attention.
5. Do not wear gloves or anything that would allow a hand, fingers or clothing to be wrapped around the revolving bit.

Operational Safety Rules:

1. Approach your work in the KCWG Shop and on the drill press with a safe attitude!
2. Make all drill press adjustments with the power shut off.
3. Keep all guards and covers on the machine when it is on and running.
4. Make sure the size of the bit is equal to or less than the capacity of the drill press.
5. Do not exceed the recommended speeds for the type and size of drill bit being used or composition of the stock being drilled.
6. Center punch the drill-hole location into the stock.
7. Insert bit into drill chuck and tighten with the chuck key. Remove chuck key from the drill chuck before starting the drill press.
8. Use a clamp or vise to securely fasten the stock to the drill press table. Never attempt to hand-hold stock while drilling.
9. Drill into cylindrical stock using a “V” block.
10. Long stock should be drilled with the excess to the left of the operator. If the stock rotates it will hit the post, not the operator.
11. Support the underside of the stock to be drilled with a backer board secured to the drill press table.
12. Never start the machine without the table clear of everything except the stock you are drilling.
13. Keep hands and fingers at least 3” from rotating drill bits.
14. When drilling deep holes, frequently raise the drill bit from the hole to remove cuttings and cool the bit.
15. When you begin to break through the underneath side of the stock, ease up on the feed as to not tear the wood from the underneath side.
16. If a drill bit binds, turn off the drill press and carefully turn drill chuck backwards by hand to free the drill bit.
17. Never reach around or under a rotating drill bit or grab the chuck to stop a drill press. This can result in hand puncture or other serious injury.
18. Turn the drill press off before looking up or walking away from the machine.
19. Never stop the rotation of the drill chuck, spindle, or stock rotating on bit with your hands or fingers.
20. Don’t touch the drill bit and shavings since they are hot immediately after drilling.
21. Always clean the drill press table and work area upon completion of the drilling task. Do not use your hands or blow the drill shavings, use a bench brush.

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