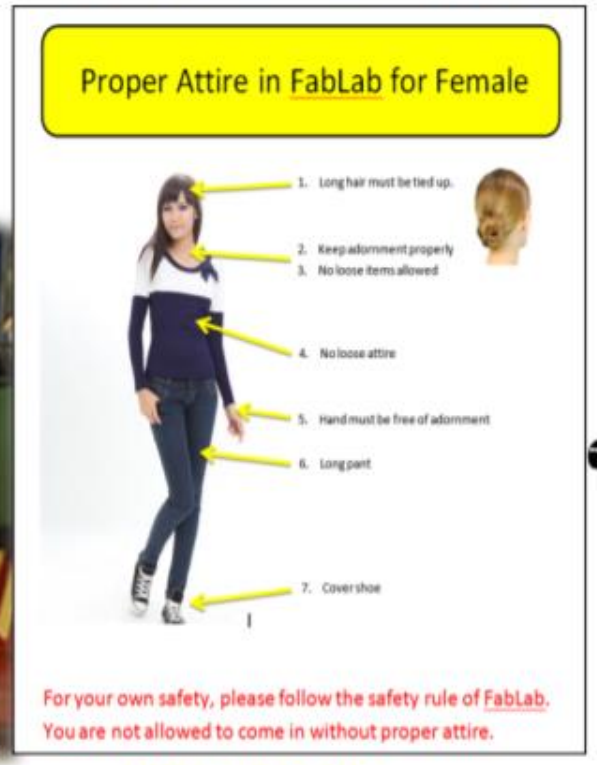
Section 2
Workshop Safety Infrastructure and Safety Communication

- To understand the Safety Infrastructure in workshops and Fab Lab.
- General Workshop Safety Communications
- Attire for workshops and Fab Lab.
- Safety Posters and Safety Warning Placards.
- Safe Work Procedure.

Workshop Safety Communication

In workshops or Fab Lab, hazard communications are visible to remind students of workplace hazards and the safety precautions to take at specific work areas, especially when working with a hazardous machineries.

Demarcation machine zone



Attire Poster

Safety Warning Placard

Proper Attire for Male

1. Long hair must be tied up
2. Keep adornment properly
3. **No loose** items allowed (Hanging necklace)
4. **T-shirt, No** loose attire, **No** long sleeve
5. Hands must be free of adornment
6. **Long pant**
7. **Cover shoes** (anti-slip sole if possible)

Proper Attire for Male

1. Long hair must be **tied up**

2. Keep adornment properly
3. **No loose items** (jewellery) allowed
4. **No** loose attire, **No** long sleeve (whenever possible)
5. Hands must be **free** of adornment **(eg loose bracelet)**
6. **Long pant**
7. **Cover shoes** (anti-slip sole if possible)

Gloves

Protective Glasses

Covered Shoes

Hearing Protection

Protective Apron

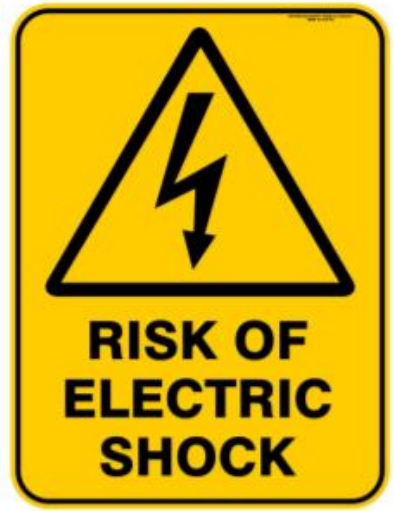
Mask

Face Shield

Safety Cloth

Crush Hazard

Hot Surface



Acid

Cutting Hazard
Keep Hand Away

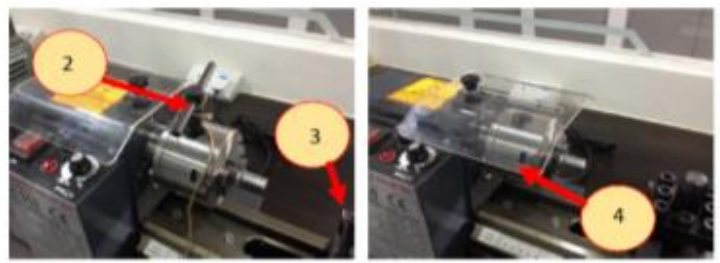
Beware Chips Flying

Safety Warning Placards

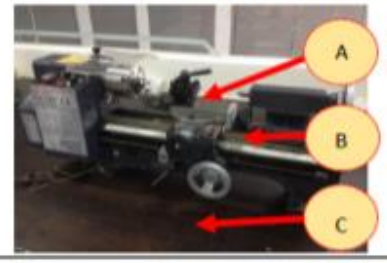
Desktop Lathe

DANGER

LOW MEDIUM HIGH



1. Ensure work is clamped securely.
2. Remember to remove the Chuck key.
3. Check that cutting tool is secured to tool holder.
4. Ensure that the safety guard is in place.



After use, clean & dust off starting from

A. Carriage
B. Under & around the machine Bed
C. Bench top

CNC Router

DANGER

LOW MEDIUM HIGH

1. Ensure safety cover is present.
2. Wear safety goggles or glasses.
3. Ensure workpiece is clamped securely.
4. Keep away from moving parts during operation.
5. Clean up the work area after use.

Always read and understand the information printed on the safety placard before operating the machine.

Safe Work Procedure (SWP)

SCHOOL OF MECHANICAL & AERONAUTICAL ENGINEERING
SAFE WORK PROCEDURE

Name of Lab	INDUSTRIAL AUTOMATION LAB	Room No	W1421
Equipment	Drill Cum Mill	Risk Category	High ~~/ Medium / Low~~

DO NOT use this machine/equipment unless you have been trained in its safe use & operation and permission has been granted by TSO of this facility.

Description of Work/Activity	Operating the Drill Cum Mill process

Potential Hazards: *(List the hazards associated to this equipment)*

1. Hot & sharp chips produced in large quantity. Do not use hands to touch or remove them. Use brush to sweep them away.
2. Rotating spindle & chuck. Beware loose clothing sleeves and remove jewellery and watches.
3. Flying chip, wear safety glass to protect eyes.

Personal Protective Equipment (PPE) Required *(Check the box for required PPE):*

Gloves	Face Masks	Eye Protection	Welding Mask	Appropriate Footwear	Hearing Protection	Proper Attire
						
		✓		✓		✓

Safe Work Procedure Checklist *(List & describe the safe procedure in operating the equipment) :*

1. **PRE-OPERATION :**
   - Dress appropriately. Remove all watches and jewellery. Wear *Safety glasses or goggles*
   - Plan out your work thoroughly before starting.
   - Know the location of the machine **OFF** button.
   - Clamp all workpiece securely on to the work table using a machine vice.
   - Always check that the chuck key is removed from spindle immediately after using it.
   - Never let the chuck key leaves your hand except to put it back into its holder.
   - Select appropriate spindle speed for the material.

2. **OPERATION :**
   - Do not stop a rotating drill press spindle with your hand after you have turned off the machine.
   - Chips often build up around the chuck during the drilling process; use a brush, not your hands, to remove chips from the machine.
   - Do not clean the machining area while the machine is running.
   - Focus your attention on the drilling process and do not distract with other activities.

3. **POST-OPERATION :**
   - Keep the work area clean. Immediately wipe up any oil spills.
   - Use the brush to clear off chips from workpiece, table and vice into dust-pan.