

# **Lab Safety Protocol for Microelectronics & MEMS Lab**

## **Gowning Procedure before entering Lab Area**

- Gowning procedure before entering Lab Area –
  1. Wear Lab coat – Each student/staff provided with individual lab coats
  2. Wear Cleanroom shoes – Each student/staff provided with individual shoes
  3. Wear Face Mask
  4. Wear Hair Net
  5. Wear Safety Glasses – Each student/staff provided with individual glasses
- Each student/staff provided with Plastic box to store their shoes and safety glasses.
- Hangers provided in Gowning Area to hang lab coats.
- Face masks and Caps will be placed in the Gowning area. Additional masks and caps will be placed in all labs as well.
- Step on the sticky mat before entering Lab Area – Make sure you rest both your feet on the mat for a couple of seconds before entering the lab.
- Purple Nitrile Gloves will be placed in all Labs – Need to be worn immediately up on entering the lab.

## **Upon Exiting Lab Area**

- Dispose the purple nitrile gloves.
- Dispose Face mask and Hair net.
- Remove Safety Glass and place in personal box.
- Remove Lab coat and hang in allocated hangar in the Gowning area.
- Remove Cleanroom shoes and place in personal box.
- Neatly arrange your personal box in the Gowning area.

## **Before Entering Wet Labs**

- Additional PPE to be worn while in wet labs (in order):
  1. Purple Nitrile Gloves
  2. Disposable Shoe Covers
  3. Chemical Resistant Apron
  4. Replace Safety Glasses with Safety Goggles
  5. Face Shield if transferring Chemicals from big containers to smaller beakers.
  6. Chemical Resistant Gloves
- Disposable shoe covers will be placed in all Wet Labs – Need to be worn immediately up on entering the wet lab and disposed when exiting the wet lab. Shoe Covers should not be worn when walking from one lab to the other. This is necessary to prevent

contamination of multiple labs in case of minor/unnoticed spills. Plan your work so you will not have to leave the wet lab in the middle of a process.

- Similarly, nitrile gloves being used in the wet labs should be disposed before leaving the lab. Do not wear them to other labs. There may be traces of chemicals in your gloves and can cause inadvertent contamination of other areas and is a serious safety risk.
- It is absolutely mandatory to wear Chemical Resistant gloves (Green Solvex/Black Neoprene) while working with chemicals.
- Replace Aprons in their locations before leaving the wet lab. Do not wear Apron from one lab to the other. There may be tiny droplets in the Apron which can inadvertently contaminate other areas.

### **Before Exiting Wet Labs**

- Safely secure your samples.
- Immediately clean all labware you were using.
- Wash the Chemical Resistant Gloves you are wearing in running water for a couple of minutes. Remove and place in appropriate holder inside Wet Bench.
- Remove Face Shield and hang in appropriate location (if applicable).
- Remove Safety Apron while wearing purple nitrile gloves and hand in appropriate location inside lab.
- Remove Safety goggles and place in appropriate location. Wear your Safety Glasses.
- Remove Disposable Shoe Covers and dispose.
- Dispose the current purple nitrile gloves you are wearing.
- Then step out of the wet lab.

### **Cleanroom Gowning Procedure**

- Step on the Sticky Mat before entering the gowning area.
- Replace Lab Coat with Cleanroom gown. Hang Lab Coat in the Garment cabinet
- Wear Shoe Cover.
- Wear Purple Nitrile Gloves.
- Enter the Cleanroom through the Air Shower.
- If using Chemicals while in cleanroom the following additional PPE should be worn –
  - Chemical Resistant Apron
  - Replace Safety Glasses with Safety Goggles
  - Face Shield if transferring Chemicals from big containers to smaller beakers.
  - Chemical Resistant Gloves

### Before Exiting Cleanroom

- Safely secure your samples.
- Immediately clean all labware you were using and the general area you were working in.
- Wash the Chemical Resistant Gloves you are wearing in running water for a couple of minutes (if applicable). Remove and place in appropriate holder inside Wet Bench.
- Remove Face Shield and hang in appropriate location (if applicable).
- Remove Safety Apron while wearing purple nitrile gloves and hand in appropriate location inside lab (if applicable).
- Remove Safety goggles and place in appropriate location (if applicable). Wear your Safety Glasses.
- Step out of the Cleanroom and Exit through the Air Shower.
- Remove Disposable Shoe Covers and dispose.
- Dispose the current purple nitrile gloves you are wearing.
- Replace Cleanroom Gown in the Garment cabinet and wear your Lab Coat.

### General Lab Protocols

- **It is mandatory for all students entering the lab to clear the lab safety test. Safety test Question Paper attached.**
- No eating or drinking in the Lab Area.
- No shorts, skirts or sleeveless tops/t-shirts allowed.
- Do not enter the Lab Area and Wet Labs without appropriate PPE.
- Use wet benches with Sash at the smallest practical opening.
- Do not use Wet Bench for storage.
- Label the labware that you are currently using.
- Clean up after yourself. Do not leave used Beakers/Tweezers behind.
- Do not use Cell Phones while in the Wet Labs unless it is an emergency.
- Know what you are working with. Read the MSDS (**Available Online**) of chemicals/gases you are going to work with prior to entering the lab.
- Clean up minor spills immediately while wearing appropriate PPE.
- In case of major spill, try to isolate the spill area and evacuate. Inform the Staff and post signs to prevent people from entering the spill area.
- **In case of any contact with any chemical, the individual should be immediately rushed to the water shower and eyewash apparatus and washed thoroughly with running water.**
- Unopened chemical bottles should be placed in the Chemical Stock room. Only opened bottles that are currently in use should be placed in the labs.

- Chemicals that are not available/empty, it will have to be obtained from the Staff by signing a ledger. This is for purposes of inventory and record keeping only.
- **Used chemicals and cleaning solutions (Piranha, RCA1 & RCA2) should be neutralized and disposed (stored in a properly labeled used chemical bottle).**
- No chemical should be carried in hand. All chemicals have to be placed in PP buckets and transported, while wearing appropriate PPE. There will be a PP bucket in every wet lab as well as a few in the Chemical Stock room.
- If any of the PPE is damaged or missing, immediately the Staff should be informed and obtain new ones. Do not proceed with processing without appropriate PPE.
- Should not ignore bad lab practices and disregard for Safety.
- Should not work in the lab alone and during night.