

DEPARTMENT OF ELECTRONIC AND ELECTRICAL ENGINEERING

DEPARTMENTAL STANDARD FOR USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE) IN WET LABORATORIES 2023/24

This document sets the minimum standard for Personal Protective Equipment (PPE) to be worn in all areas designated as wet laboratories at Electrical and Electronic Engineering (EEE) Department. Wet labs are any EEE laboratory where significant chemical hazards have been assessed as present. Anyone conducting activities taking place in a wet lab area, must consider the risk of splashes and spills as a significant risk and implement this standard.

This standard will cover:

- All staff, students and visitors who work in or visit wet labs.
- All EEE wet labs used for teaching and/or research.
- Engineering spaces or other practical workspaces must follow this Standard if there is a risk of splashes and spills of hazardous substances*

*Note that other engineering spaces (e.g., workshops) may require PPE for other reasons, such as eye protection for the risk of projectiles or sharps. This must be considered when setting the minimum standard for the PPE for those area. This document also does not cover the use of PPE to handle cryogenics, which is considered separately.

Personal protective equipment should be used in combination with other control measures. PPE **should not** be considered as a replacement for other control measures e.g., engineering controls and safe systems of work.

Wet labs in E&EE

The following areas in EEE are defined as wet labs:

Lab	Location
906	Roberts building, 9 th floor
PCB lab (610)	MPEB, 6 th floor
1007 (clean room)	Roberts building, 10 th floor

Designated 'Wet Lab' areas.

'Wet lab areas' may be defined within larger rooms if the activity using hazardous chemicals is clearly segregated from other work in the lab. PPE must be worn when entering these 'wet lab' areas, and this PPE standard applies to all work in them.

EEE requirements for PPE to be worn in Wet Labs

The items listed below constitute the expected minimum standard for PPE in EEE wet labs. Risk assessments should be available describing PPE requirements, including suitability, compatibility, maintenance, storage, and cleaning/disposal. Risk assessments can be used to identify additional PPE requirements but cannot lower the standard of PPE used.

Lab Coats

A lab coat must be worn by all staff, students, and visitors, when going beyond the entrance to any wet lab.

- All staff should have at least one lab coat issued to them. Clean, reusable, or disposable lab coats should always be available for visitors in a range of sizes.
- The lab coat must be fully fastened when in the lab and all jewellery, scarves, ties, and accessories that might become contaminated or cause entanglement, should be contained within the lab coat.

- Press stud fastening to allow for quick removal if contaminated.
- The lab coat should be maintained in good condition, laundered at routine intervals, and laundered as soon as possible after hazardous substances have been spilled or splashed onto the lab coat.
- Lab coats must be hung or stored in such a manner as to minimise the risk of contamination on the outside being transferred to the inside of the coat or to any other object.

Gloves

- Suitable gloves should be worn when handling chemicals in wet labs. Gloves should meet the European Standard **EN374-3**. Gloves should be available in different sizes.
- Glove Manufacturers use three key terms, breakthrough time, permeation rate and degradation to show how well their gloves perform against different substances. Manufacturers' charts should be used to identify the best gloves for the chemicals being handled. When handling chemical mixtures, selection of the glove should be based on the component in the mixture with the shortest breakthrough time.
- Contaminated gloves should be discarded appropriately.

Eye Protection

- Eye Protection must be worn by all staff, students and visitors when going beyond the entrance to any wet lab. Where this is not practicable, eye protection must be put on as soon as possible upon entering the laboratory and always prior to any work starting.
- The minimum standard for eyewear is **BS EN 166**.
- Arrangements must be in place to accommodate those individuals who need to wear corrective glasses. Over-glasses or prescription safety glasses must meet the standard.
- All users must undertake a visual check of their eye protection before use.

Misuse of, or failure to use PPE

Failure to wear eye protection, lab coat and/or gloves when required, or failure to wear these items correctly, will result in the individual being asked to leave the wet lab and may result in compulsory retraining. Repeated deliberate breaches of PPE rules will result in disciplinary action if the behaviour is repeated.

Suitable personal clothing in wet labs

Although footwear and appropriate clothing is not considered PPE it must provide minimum protection to the skin and the foot.

Cotton or canvas shoes are not suitable as chemicals may soak through to the foot too quickly.

- Footwear must fully enclosed and cover feet.
- Footwear must be able to resist hazardous substances to slow exposure to the foot.
- Clothing must be sufficient to cover the legs and resist exposure to hazardous substance splashes and spills.

Storage of PPE for wet labs

- Storage must be available for staff and visitor's lab coats and eye protection on site.
- Storage can be inside the wet lab, provided there is a suitable distance between the storage area and the activity – to lower the risk of spills and splashes before the eye protection and lab coats are put on.
- The storage area must maintain both eye protection and the lab coat in a suitable condition.
- Eye protection must be stored in such a manner as to minimise the risk of the lenses being scratched or the frames being bent out of shape.
- Eye protection must be stored so they are free from dust or other contamination on the inside of the lens which is closest to the eye.
- Gloves must be stored away from areas where they can be easily contaminated.
- Nitrile gloves must be stored away from direct sunlight as sunlight will deteriorate the gloves.

Movement between laboratories

Lab coats and gloves that are, or could be, contaminated are not to be worn outside wet labs. This is to prevent contaminating areas outside of the wet lab e.g., corridors/door handles, or spills and splashes impacting staff not wearing PPE.

Monitoring

Regular inspections of PPE, and PPE storage should be carried out to check that it is not damaged or compromised reducing its protection to the user from hazardous agents:

- Eye protection must undergo recorded formal checks on its condition. If damaged, contaminated or having received an impact, they should be removed from use and replaced if necessary.
- The condition of lab coats should be considered during scheduled lab inspections. Coats found to be damaged should be repaired or replaced, as considered appropriate by the lab safety coordinator. If lab coats are found to be excessively dirty the frequency of cleaning should be reviewed.
- The condition of unused disposable gloves should be checked during scheduled lab inspections. Any unused glove boxes more than three years old should be disposed of and replaced.
- PPE storage should be checked during scheduled lab inspections for tidiness and cleanliness.

Professor Sarah Spurgeon, Head of Department

Signature 

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