University of Glasgow | School of Engineering

ISET Laboratory, Room 335

James Watt North building

CODE OF PRACTICE

The adoption and practice of good safety procedures is of paramount importance for everybody's health and safety, as well as for the quality of the work we can carry out in the Space Systems Engineering laboratory.

Note: No latex products are to be brought into the laboratory

1. No work may be carried out in the Space Systems Engineering laboratory, Room 335, James Watt North building without the prior permission of Professor Margaret Lucas or Dr Patrick Harkness.
2. Online risk assessments must be completed for specific tasks, or use of specific items, and approved by your supervisor, and the appropriate responsible person for the lab BEFORE ANY WORK COMMENCES. For the Space Systems Engineering Lab, Room 335, this responsible person is **Dr Patrick Harkness**. Such work may involve (but is not limited to) high voltage, use of a laser, use of drills, and other exploration hardware.

   https://webapps.eng.gla.ac.uk/tools/risk/
3. New staff and students should also make themselves aware of the safety procedures and of the location of safety equipment in the lab.

   These are:

   Emergency telephone number: Extension **4444** or, from a mobile or an external line, **0141 330 4444**

   Fire Extinguisher (Immediately at lab entrance; also in the corridor and next to door of lab 324, as shown in floor plan below)

   First Aid kit (Level 3: Janitors box, Level 4: Tuck lab)

   Ear protection (Hanging next to lab 335 main entrance)

   Laser safety spectacles (Hanging next to lab 335 main entrance)

   Emergency exit (through main building entrance in James Watt South, through the exit leading to the lane beside the Thomson building, or through James Watt North building).
4. Work outwith standard office hours and weekend working requires the permission of your supervisor. If permitted, the out-of-hours working book located in the foyer of the JWS building must be signed and the time recorded on arrival and the time recorded on departure.
5. Ear protection and laser safety spectacles should be used when appropriate.

James Watt North Level 3: Floor plan

Use of lab equipment

6. To minimise trip hazards, extension cables should be plugged into the closest available socket, making use of overhead sockets where possible (appropriate staff and access equipment must be used to operate these sockets).
    i. Once equipment is not in use, it should be turned off and any extension cables used should be tidied to a suitable location.
    ii. Leads and plugs should ONLY be used on the allocated item of equipment and should NOT be switched between equipment.
    iii. The gain on power amplifiers should be zeroed when not in use.
7. Electrical connectors between different devices or equipment should be safe. If in doubt speak with electrical technicians (JWS Room 619).
8. If you are unsure how to correctly use an item of equipment, seek assistance from an appropriate person.
9. For any experiments involving the creation of dust or debris, a mobile extraction hood must be used if appropriate and indicated personal protective equipment (PPE) must be worn.
10. For any experiments involving deployable structures, eye protection must be worn and all deployments must be carried out within a clearly marked-out area and/or within an enclosure as appropriate.
11. For any experiments involving high levels of noise (eg. drilling or cutting operations), consultation and agreement with staff in nearby offices, labs and teaching rooms should be sought. Exam times require particular consideration.
12. No new experimental setup should be attempted without a risk assessment being filed. Standard items of equipment often have their own risk assessments already completed, but these should be revised before each new application. All non-standard equipment should be reviewed in its entirety. Contact the responsible person, **Dr Patrick Harkness**, for risk assessment advice and forms. The lab assessment should be signed off before experiment undertaken.
13. Soldering should only be undertaken in the indicated area with the extraction filter on.

General lab practice

14. If outside clothing or bags etc. are brought into the lab they should be stored at the coat hook at the door.
15. Food and drink are not permitted in the lab.
16. The interconnecting door to room 334 must be kept clear at all times as should the area beside the door to the server room.
17. Once experimental work has been completed and the experimental setup is no longer required, the experimental area should be cleared in preparation for another researcher / experiment. The following practices should be followed after the completion of experimental work;
    i. Equipment should be placed in an appropriate location safe-guarding its safety, minimising potential damage and allowing other researchers access to it.
    ii. The experimental area, if required, should be wiped or cleaned. This is NOT the responsibility of the cleaner.
    iii. The general rule should be, if equipment is in storage you can use it for work, and if it is out on the bench it is already in service.
18. Ensure experimental and storage areas are kept clean and clear of unnecessary equipment.
19. Laboratory doors should remain locked at all times to ensure security.
20. If equipment is required to leave the lab, permission is required from **Dr Patrick Harkness** or **Prof Margaret Lucas** and, if necessary, seek assistance in the move.
21. If equipment breaks down or is not working, report the fault to your supervisor or **Dr Patrick Harkness** immediately.
22. A fault with the fabric of the room, such as a lighting failure, should be reported through Maintenance Request found on the Estates and Buildings webpage, http://www.gla.ac.uk/services/estates/.
23. Until further notice, the additional COVID-19 procedures set out in the Appendix will apply.

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Appendix - ISET Laboratory JWS335 - COVID-19 Procedures

Overview

This document provides the procedures you are required to follow while carrying out work within the I-SET laboratory. The procedures on working within the laboratory are based on the School advice which is based on advice from the University and Scottish Government. Updates to these procedures will be undertaken as and when the advice from the School/University is updated.

If you have any questions or comments please contact your PI, supervisor, the Lab Manager, or the Lab Guardian.

New Layout

Based on current advice the laboratory will have a new layout. This is shown in Figure 1 below. This layout is to maximise the number of people in the lab at any one time while maintaining the regulations. Bench 1, 2, and 3 will have a single chair with a single chair at the soldering iron station. A chair will also be at the optical table. Chairs are not to be moved from the locations.

With this new layout, the lab will consist of four zones as shown in Figure 2. Each zone is a working zone designated for one person.

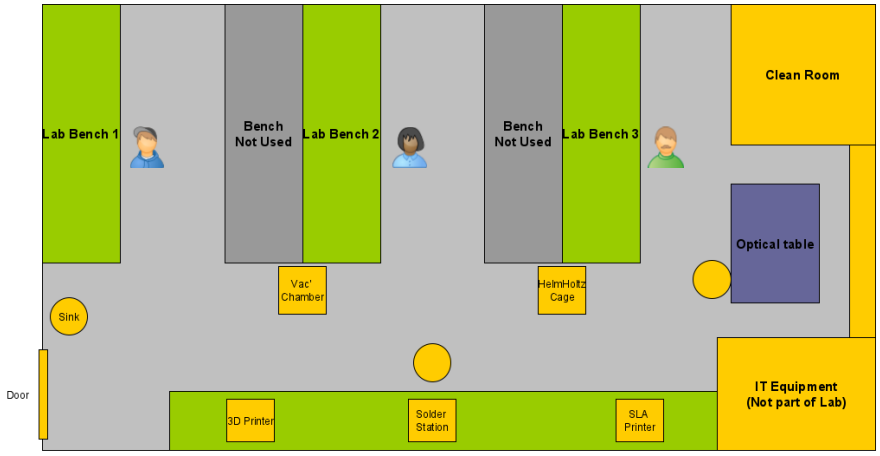

Figure 1: New Layout (not to scale)

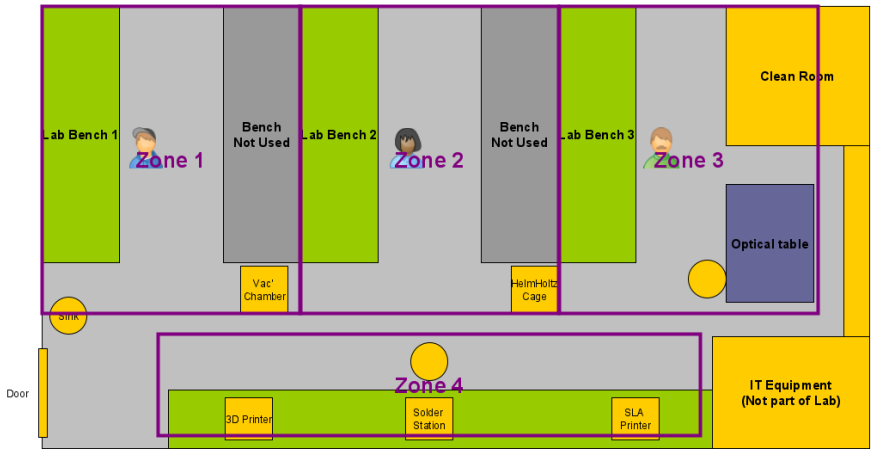

Figure 2: Zoned Layout (not to scale)

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Procedure – Gaining Access

To gain access to the lab the following is required:

- Read the updated code of conduct for the laboratory, this document, and any School level COVID-19 documents that are required
- Inform the Lab Guardian, who will note this has been done
- Carry out risk assessment of the work to be undertaken with COVID-19 regulations in mind
    - This will be reviewed and signed off once all parties have agreed
- Apply for access to the laboratory via the booking system (Zones 1 to 3 and soldering Iron)
    - Booking system assumes half day working (Morning/Afternoon) with an hour transition time to allow for the wiped areas to dry. Each zone is bookable up to two weeks in advance. Only five slots can be booked at any one time.
    - Only zones 1 to 3 and the soldering iron can be booked
    - Large items (optical table, Vac' Chamber and Helmhotz cage) can be booked within the zone with block bookings allowed

Zone 4 is designed to allow people to access the printers and put on print jobs that are to be completed during working hours. They can enter the lab put a print job on and then exit. You are expected to follow normal lab rules regarding 3D printing (Check the print at least once an hour).

Procedure – In Laboratory

When working in the laboratory please only bring what is required. No coats/jackets or bags should be brought into the laboratory.

The use of face coverings will dictated by the James Watt School of Engineering, which will be advised by the HSE, UK Government and Scottish Government.

Once in the laboratory the following procedure must be followed:

1. Wash your hands
2. Use Sanitiser on your hands
3. Move to the zone you have booked ensuring that you have all the equipment you need there. If you need equipment from elsewhere gather it first to reduce the time outside the prescribed zone.
4. Wipe down the work area before you start

You are expected to limit your movements around the laboratory and ensure that you adhere to the current social distancing advice.

You should sanitise your hands on a regular basis.

Once you have completed your work the following must be done:

1. Wipe down the work area that you used and any tools that you may have used
2. Replace tools and equipment to where you picked them up from
    - This ensures everyone knows where the tools are and can pick them up before they start work
3. Wash your hands before leaving the laboratory