



University
of Glasgow

SCHOOL OF ENGINEERING

ELECTRONICS TEACHING AND PROJECT LABS

CODE OF PRACTICE

Version 1.0
Updated August 2020



University
of Glasgow

SCHOOL OF ENGINEERING

Electronics Teaching and Project Labs Code of Practice for Rankine 709 & 712B

Lab Guardian: Bruce Robertson Technical Services Manager Electrical and Electronics
Lab Technician: Andrew Phillips, Electronics Technician

Introduction

Electronics Teaching Lab 709

The lab caters for a maximum of around 68 Students split into 2 Lab groups and 9 Project students on any one occasion and has benches equipped with test instruments such as desktop PCs, oscilloscopes, multi-meters, signal generators, bench power supplies and soldering stations.

It is used for undergraduate experiments where students under the supervision of academics and demonstrators work on circuits/experiments and assemble supplied components using 'push in' prototype boards, or soldered connections on copper strip-board/printed circuit board (PCB). Experiments are powered from batteries or a low voltage bench power supply.

Labs are timetabled with a technician being allocated. More open access is available when there are no teaching labs on, these times are not actively supervised but there is generally a technician around.

Project Lab 712B

Similar construction and design work is carried out in the Project Lab 712B - there is no continual staff presence or direction and the finished assemblies are used in either BEng/MSc final year individual projects, Team Design Project 3, Student Societies or team projects such as the 3rd year robot buggy.

During the summer months groups of international undergraduate students use both labs for either experimental or project work. During these periods supervision will be provided by demonstrators but will not necessarily be continuous.



SCHOOL OF ENGINEERING

The range of activities in the two laboratories are listed below: -

Both labs

- Circuit design/simulation and PCB design – using PCs.
- Wire cutting/trimming
- Assembly of circuits using prototype board or soldering station for strip-board/PCB
- SMD assembly utilising Microscopes
- Testing/measuring – using oscilloscopes, multi-meters, bench power supplies.
- Project (such as robot buggy) trials – using marked out track on floor.

Access to Laboratory Equipment and Processes

The Teaching/Project Lab is a general access area of the Rankine Building during normal working hours. Out with organised lab sessions, when there is no specific supervision, students undertaking experiments/projects can contact technical staff in the adjacent Electronics Workshop for help and advice.

Students working on individual projects are expected to complete a formal risk assessment with their academic supervisor.

There is no weekend or out of hours working in these labs. Both will be locked and alarmed at 5pm on weekdays.

Most of the equipment in the lab is security locked to the benches and should not be removed.

All Equipment within any of the labs is the property of the School of Engineering, EEE Department and is administered by the assigned Lab Technician. Other than normal operation the equipment should not be handled or moved by students without first being advised by the Lab Technician or Lab Guardian.

Health and Safety Information

New students must be given a safety induction and training in the relevant processes by academic staff before they use the facilities.

Students must work in accordance with health and safety information which is posted around the labs covering:

- Student's Safety Handbook (709)
- Safety with Electricity - The Electricity at Work Regulations 1989 handbook (709)
- Posters instructing in electric shock risk and resuscitation methods (709 & 712B)
- Sign detailing RCD protected circuits (709 & 712B)
- Sign requiring that only colophony free solder is to be used (709 & 712B)
- Sign requiring that only equipment with a current PAT test label may be used (709 & 712B)



University
of Glasgow

SCHOOL OF ENGINEERING

- Safety glasses are freely available (709 & 712B)
- Notices prohibiting eating and drinking are displayed (709 & 712B)
- Storage facilities for students personal belongings and project materials is provided
- There is a coat hanger area for Students personal jackets, bags etc. which should be used to reduce amount of items being brought into the teaching and project areas.



SCHOOL OF ENGINEERING

Lab Rules

The overall operation of the labs falls under the responsibility of the Lab Guardians and the Lab Technician. Health and Safety is the responsibility of all users when working in the labs. The following rules have to be adhered to by all:

- 1) While working in the main lab area of 709 all occupants should ensure safe storage of their personal belongings in the coat hanger and locker area. No personal jackets should be brought into the main teaching areas and any rucksacks / bags should be placed under the benches to prevent potential trip hazards to users.
- 2) No food or drink is permitted in the teaching labs at any time. Break areas and breakout rooms are provided in the building and students are encouraged to use these.
- 3) Benches must not be over populated to ensure adequate working space is available for all students.
- 4) Equipment is the responsibility of the Lab technician and should not be moved from the allocated benches without prior agreement and permission of the technicians.
- 5) Use of soldering stations / soldering irons require use of PPE in terms of safety glasses, these are readily available at the entrance to room 709, in the event all are in use additional sets can be provided by the technician.
- 6) All soldering stations / microscope areas and workbenches must be kept tidy, it is the user's responsibility to ensure the areas are cleared of any components, wire clippings and tools at the end of their working session in preparation for the next user.
- 7) No work is permitted that would expose the user to any dangerous voltages or currents i.e. 240V Mains AC , any projects or development work related to this should be brought to the attention of the Lab Technician or the Lab Guardian.
- 8) Only equipment that has passed a valid PAT is permitted to be used within the labs, any external equipment brought in by users must be brought to the attention of the Lab Technician to be checked.
- 9) All School of Engineering equipment is periodically PAT and should have a valid sticker stating date of testing, any equipment considered to be out of date **MUST** be brought to the attention of the Lab Technician.
- 10) All temporary user lockers are allocated with their own padlock and combination and the contents are the users responsibility and department is not liable for any loss or damage. If users are unsure about what can be stored in the lockers they should consult with the Lab Technician
- 11) Any breaches of the rules should be brought to the Lab Technicians attention.



SCHOOL OF ENGINEERING

Fire safety

In the event of a fire or the fire alarm sounding, lab users must leave the building by the nearest escape route. 709 and 712A have CO2 fire extinguishers located by the main entry/exit doors. These must only be used by authorised and trained users.

The Safety and Environmental Protection Service provide online fire awareness courses.

First aid and emergency procedures

A First Aid box and Eye Wash is available in 709 and a First Aid box is available in the Electronics Workshop – adjacent to room 712B. A notice displaying a list of First Aiders is beside the passenger lift.

Incident reporting and investigation

All accidents/near miss incidents arising within the laboratory or any aspect of laboratory activities must be reported immediately to any member of the academic or technical services staff who must complete an Incident Report Form.

Procedures for highlighting safety concerns

Any concerns about safety within the laboratory should in the first instance be raised with the Lab Technician or a member of the Technical and Academic staff in the area. In the unlikely event that highlighted safety concerns are still not acted upon to the user's satisfaction, he or she is entitled to write to the Department Safety Director or Co-ordinator who will decide whether further action is needed and will ensure that any recommendations are implemented.



SCHOOL OF ENGINEERING

COVID-19 Special Measures

As part of the School of Engineering the Electronics Teaching labs are governed by the University of Glasgow overall policies that apply to physical distancing and cleaning measures to be in place as a result of the 2020_COVID-19 Pandemic.

1. A physical distancing of minimum 2 metres will be adhered to at all times
2. The maximum class size will be 25, should the space allows to accommodate it
3. Physical Distancing signage will be placed in all teaching and circulation spaces
4. A facilitated physical distancing system for entering and exiting each teaching area will be in operation. All students and staff should wear face coverings when in circulation areas and when entering or leaving teaching rooms.
5. Face coverings or Visors will be made available to staff and students.
6. The Universities' risk based Enhanced Cleaning regime will be in place
7. Additional sanitising products will be made available in each teaching space to allow additional discretionary cleaning by students or staff
8. A record of attendance will be retained for 21 days for each teaching activity. This record will only be used for the purposes of the Scottish Government Test & Protect programme following a positive diagnosis of coronavirus amongst attendees.
9. Specific Covid-19 risk assessments need to be in place for each teaching modules to reflect specific cleaning measures and physical distancing (i.e. max. occupancy, physical setup) relevant for teaching activities to take place. These will be prepared by individual academics who are responsible for the teaching modules to be delivered in these labs.

COVID19 References

- University of Glasgow COVID19 protocols: [UofG covid19-protocols](#)
- School of Engineering COVID19 protocols : [covid19-protocols](#)
- Teaching Lab 709 Risk Assessments: [Teaching Lab Risk Assessments](#)
- Project Lab 712B Risk Assessments: [Teaching Lab Risk Assessments](#)



University
of Glasgow

SCHOOL OF ENGINEERING

Document Revision Control Sheet

Author	Date	Comment	Revision
Bruce Robertson	August 2020	Document reworked layout from 2015 version. To include COVID-19	1.0