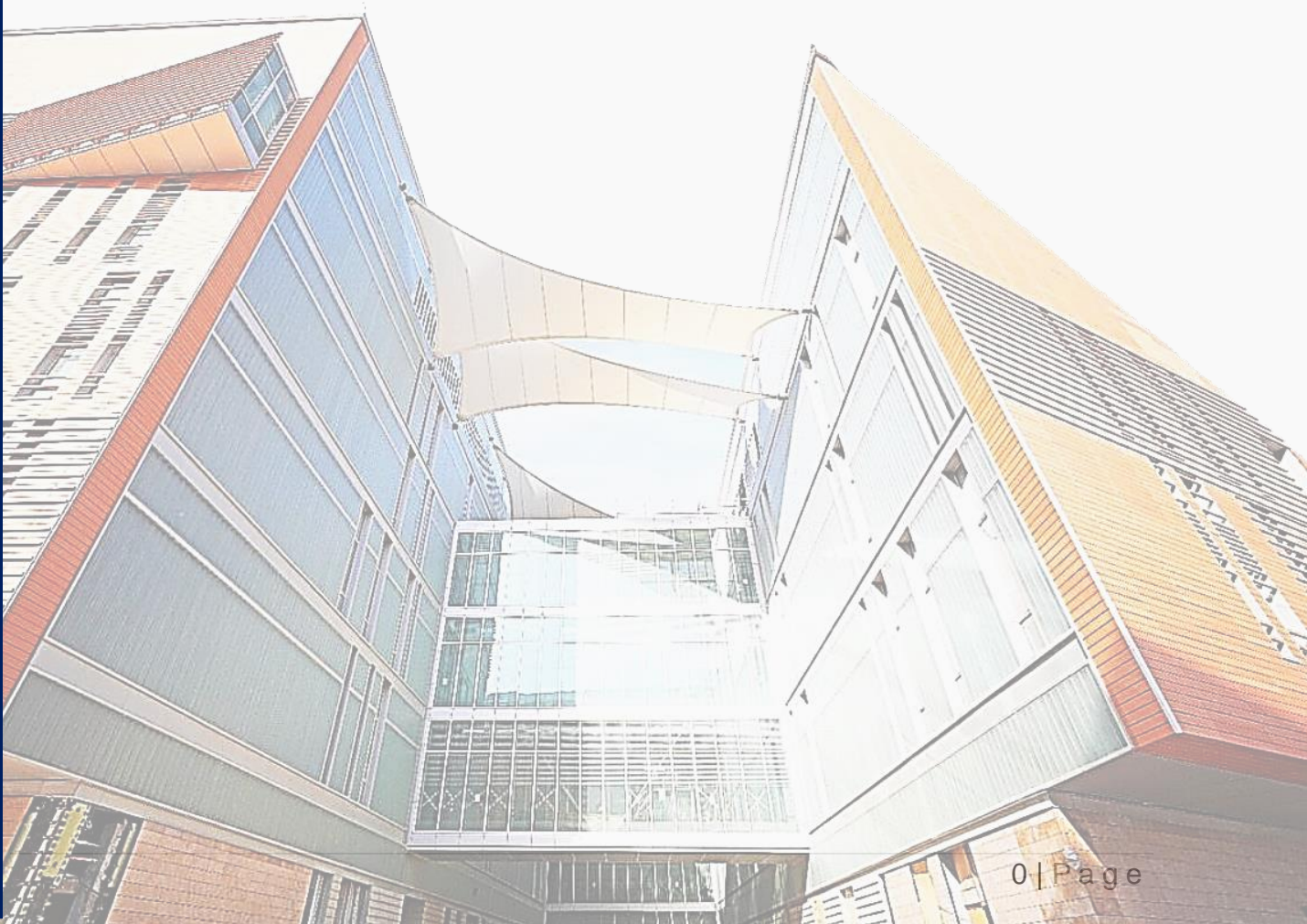جامعة الكويت
KUWAIT UNIVERSITY

Laboratory Safety Manual
Department of Computer Engineering

Contents

1. Introduction

The Computer Engineering Department at Kuwait University is committed to ensuring a safe and productive working environment for students, staff, and faculty. Computer engineering labs involve hands-on activities with equipment, systems, and tools that require adherence to specific safety measures. From programming and embedded systems to robotics and networking, each lab environment presents unique safety challenges. This manual outlines the necessary precautions to mitigate risks and foster a safe learning environment. Always prioritize safety and immediately address concerns with your lab instructor.

Below are listed some fundamental aspects related to safety:
- Safety must be faced as an attitude.
- Safety rules are set for everyone, but they depend on individual behavior.
- Prevention should mean safety.
- Everyone must be aware of sensitive to safety issues and take action accordingly.

2. Scope
- To provide an overview of laboratory safety protocols specific to computer engineering labs.
- To explain emergency procedures and response strategies.
- To establish safety guidelines tailored to different types of computer engineering labs.

3. Responsibilities and Reporting

Before commencing lab work, students will receive a safety orientation during the first session of the semester. Students must understand and follow the safety instructions. Lab instructors and technical staff are responsible for ensuring that equipment is safe for use.
In case of emergencies, students must notify their lab instructor immediately. If unavailable, follow the reporting chain:
1. Course Instructor.
2. Department Chair.

EMERGENCY CONTACTS		COMMENTS
Center of Safety & Security	Phone No.: 24983333 WhatsApp: 24985553 Email: info.security@ku.edu.kw	Available 24 hours/day
Medical Clinic	Phone: 24983455	South Building, Ground Floor- available 24 hours/day
Eng. Mohammad Attia	Phone No.: 6065 3128	Main contact for CpE labs safety
Emergency Number in Kuwait	Call 112	For Ambulance, Fire or Police, 24 hours/day
Mohammad Mustafa	Phone No.: 69080252	Firefighter in College of Engineering & Petroleum
Dept. of Construction & Maintenance	Phone No.: 24986888	Available 24 hours

4. Emergencies – Accidents and Spills

4.1 In Case of a Fire:

- In the event of a fire in your work area, shout "FIRE", and pull the nearest fire alarm.

- Evacuate the building immediately through the nearest exit. Do not use elevators.

- If safe to do so, attempt to extinguish minor fires with the appropriate extinguisher. For major fires, ensure evacuation and alert authorities.

- The safety of all individuals in the vicinity of a fire is the highest priority. However, do not compromise your own safety in the process.

- Attempt to extinguish a fire only if you are confident, it can be done promptly and safely using a handheld fire extinguisher. Ensure that the extinguisher is appropriate for the specific type of fire. Do not attempt to fight a major fire on your own. If possible, ensure the room is evacuated, close the door without locking it, and exit the building via the stairs.
- When it is safe to do so, call 24983333 and provide the location and details of the fire.
- Answer all the questions and do not hang up the phone until the operator is finished.
- Report all incidents to your laboratory supervisor. Completed Injury/Incident Reports must be submitted by Administrative Director to Safety and Security Administration (SSA), and where applicable to the College Safety Office within 24 hours of its occurrence.

- All laboratory accidents will be reported to the University and College leader and reviewed for root causes.

4.2 If you can't evacuate:

- Find a safe location and call emergency.
- Crawl to the door on hands and knees, so you can breathe the fresh air near the floor.
- Seal your room against entering smoke.
- If it's still smoky in your room, breathe through a wet towel that covers your nose and mouth. Breathe only through your nose.
- Clear flammable debris from the window.

4.3 If an emergency has caused injury to a person:

- Provided it is safe for you, stay with the victim!
- If the victim is conscious, ask what the problem is.
- If the victim is unconscious, check for breathing and bleeding. Do not move the individual until trained personnel arrive or an immediate threat to life exists. Only trained individuals should administer first aid and CPR.
- Keep the victim still, comfortable, and ventilated.
- Protect the victim from any disturbances.
- Search for any emergency identification (i.e. ID)
- Wait for emergency help to arrive. Never leave the victim alone if possible.
- Once the emergency responders have arrived, stay out of the way of emergency personnel and emergency vehicles!

4.4 Fire Extinguisher Instructions (PASS)

- P * PULL safety pin from the handle
- A * AIM at the base of the fire
- S * SQUEEZE the trigger handle
- S * SWEEP side to side

4.5 Clothing on Fire

- Stop, drop, and roll to extinguish flames.
- Use a fire blanket.
- Do not use a fire extinguisher on a person.
- Use non-flammable materials to smother flames if necessary.

5. General Safety Guidelines & Rules

- Know the location of fire alarms, extinguishers, and exits.
- Make sure that you know your escape routes and where emergency exits are located as well as safety equipment and how it is used.
- NO FOOD, DRINK, OR USE OF TOBACCO IN ANY FORM is allowed in the labs.
- Work only under the supervision of a lab instructor.
- Do Not Remove Anything from the Lab without permission.
- Keep workspaces clean and organized.
- Avoid touching equipment with wet or sticky hands.
- Secure all electrical connections before powering up devices.
- Report accidents or equipment malfunctions immediately or any unusual activities such as a student tampering with equipment.
- Refrain from using mobile phones or music devices during lab activities.
- Check whether the laboratory is safe when you leave it. (Make sure that no power bank or any personal devices connected to the power source).

5.1- Duty of Maintenance

Annual safety audits are conducted by the Safety and Security Dept. which among other things is responsible for the following:
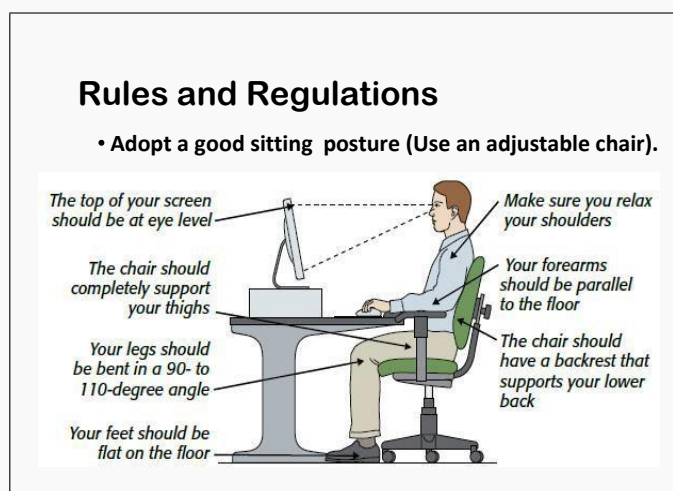
- Following-up security and safety devices used in all buildings, facilities and work centers and making sure of their validity, integrity, and compliance with the terms of prevention and safety.
- Periodic check on the university's facilities and ensuring the validity of the fire equipment in coordination with the Dept. of Construction and Maintenance.
- Rapid response in case of elevators failure at any university building.
- Continuous cooperation and arrangements with the General Dept. of Fire to examine all the equipment and check on the safety preparations at KU.

5.2- Students' Responsibility

- Supervision - never work in the lab without the supervision of a competent person.
- Attention - always pay attention to the work and do not fool around in the lab.
- Follow instructions - always perform experiments precisely as directed by the supervisor.
- Emergency readiness - know what to do in the event of an emergency.
- Responsible to read and understand the experiments before conducting them and to be aware of any activity is going to do in the laboratory (e.g. design etc.)
- Responsible use of equipment following the user manuals and instructor advice.
- Responsible to follow the instructor instructions.
- Responsible to leave the class only after warning the instructor.
- Responsible to report any safety concern to the instructor.
- Responsible to take care of the colleague's safety.
- Responsible for cleaning the workplace after the experiment and switch off the equipment.
- Responsible not to introduce any dangerous object, substance, and not to use food and drinks in the lab.
- Responsible for storing in a safe place bags and other material to avoid dangers or difficulties during the Lab time or after.
- Responsible to follow the safety procedures, manuals, related to the Laboratory and its devices.
- Responsible for safe behavior (e.g. sitting only on chairs, maintain discipline and order etc.)

5.3 Essential Tips for Using Computers for Long Periods

When using computers, to avoid any back or neck pain, you should adopt a good sitting posture. Your shoulders should be relaxed, your feet flat on the floor and your back straight. Your keyboard and monitor should be positioned directly in front of your body. You may use an adjustable chair to help you sit comfortably.

Rules and Regulations

• **Adopt a good sitting posture (Use an adjustable chair).**

The top of your screen should be at eye level

Make sure you relax your shoulders

The chair should completely support your thighs

Your forearms should be parallel to the floor

Your legs should be bent in a 90- to 110-degree angle

The chair should have a backrest that supports your lower back

Your feet should be flat on the floor

6. Lab-Specific Safety Information

- All the CpE labs are controlled by Building management system (BMS) to ensure proper ventilation for equipment to prevent overheating.
- Each lab has a [lab card](#) that can be read by scanning the QR code stuck beside the door.
- Each lab has a lab sign for not allowing food & drinks.
- All CpE labs have:
    - 6 kg dry Powder fire Extinguisher
    - Fire Blanket
    - First Aid Kits
    - Smoke Detector
    - Lighting Control System to minimize eye strain and reduces screen glare
    - Water sprinklers
    - Camera: connected to surge protectors or uninterruptible power supplies (UPS).
    - Safe Wiring extensions
    - Key Card Access, only registered users are allowed, there is a swipe card lock on each of the laboratory doors and a required [Form](#) should be fill and sign.
    - Each laboratory has a copy of this manual readily accessible to personnel in the laboratory.
    - The Laboratory Safety Manual should be reviewed and updated periodically to ensure compliance with current safety standards and best practices.
    - Each laboratory clearly labeled with their contents.
    - Emergency power shutoff switches are easily accessible and clearly labeled.
- Laboratory tables are strong and can easily support the weight of heavy computer equipment in well-ventilated room.
- Desks and chairs are ergonomic for prolonged use and monitors are positioned to reduce glare and at eye level for users.
- All power cords (MK Socket Industrial) and Ethernet cables cat7 are properly secured.
- A software installation policy applied to all PCs in all labs that Administrator password is required to install software in Windows.
- All lab equipment is energy-efficient and powered down when not in use.
- Having three dedicated technicians for the CpE labs is beneficial. They ensure that the equipment is properly maintained and troubleshoot issues quickly (including expiration dates) and the operational conditions of the equipment.

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- A comprehensive technological system designed to support academic members and staff in the efficient and accurate submission and management of technological requests and issues.
    - https://supportme.ku.edu.kw/
    - Call and WhatsApp: +965 24984444
    - The Technical Support Department provides periodic maintenance for laboratories through an official letter.

6.1. Programming Labs

- Ensure all software tools are installed from trusted sources and avoid running unauthorized scripts.
- Report any hardware or software malfunctions to the instructor immediately.
- Use only university-approved USB drives or storage devices to avoid introducing malware.
- Avoid overloading electrical outlets with chargers or adapters.
- Be aware of high CPU/GPU usage, which can cause overheating—monitor system performance.
- Store and handle large datasets carefully to avoid data corruption or loss.
- Follow ethical guidelines for data usage, ensuring compliance with privacy and security regulations.

6.2 Hardware Labs

- Double-check all circuit connections before powering on microcontrollers or sensors.
- Disconnect power before making any hardware adjustments.
- Appropriate personal protective equipment (PPE) should be used whenever experiments require it.
- Handle delicate components like microchips and sensors with care to avoid damage.
- Report any overheating or unusual behavior of hardware components to the instructor.
- After using any hardware component, ensure it is properly powered down or disconnected to prevent overheating.
- Test moving systems in designated areas to avoid injuries.
- Avoid daisy-chaining multiple power strips.
- Label cables to avoid confusion during setup.
- Ensure proper ventilation and cooling for high-performance computing systems (e.g., GPUs, TPUs).
- Report any system failures, overheating issues, or unusual hardware behavior to the instructor.

7. Training and Awareness

Students, staff, and faculty using the laboratory must be trained and learn developed policies and procedures.

- Ensure all students and staff receive an orientation on lab-specific safety rules and procedures.
- Verify that users are trained on the proper operation of all specialized equipment.
- Establish clear procedures for reporting and documenting safety incidents.

8. Emergency Procedures

- Conduct periodic evacuation drills to familiarize lab users with exit routes.

9. Lab Information Sheet

- This [sheet](#) displayed next to the entrance of each laboratory.