

Laboratory and Workshop Regulations (as of: 21.8.2009)

The Laboratory Regulations serve the purpose of general safety and ensure proper procedures in work occurring in all laboratory and workshop areas.

The Safety Regulations apply to all persons working at the *Institute of Networked and Embedded Systems* and are to be understood as directives in terms of § 14 of the Employee Protection Act. Acknowledgement of these Laboratory and Workshop Regulations must be confirmed by signature.

1. Safety Regulations

Laboratories are defined as "electrical operating rooms" in accordance with the Regulations of the Austrian Electrotechnical Association (ÖVE). Working in the laboratory is prohibited without prior instruction in the Regulations.

The University of Klagenfurt is not legally liable for damage to persons or property proved to have been caused by gross negligence or deliberate action. Compensation claims against the University or the Institute are ruled out.

- 1.1 All members of the university are obliged to take note of and observe the General and Fire Safety Regulations.
Link: <http://www.uni-klu.ac.at/rechtabt/downloads/mbl2b3-07-08.pdf>
- 1.2 Every individual is obliged to familiarize him/herself with the location of fire extinguishers, first-aid boxes and further security facilities. An overview thereof is attached to these Regulations. Further information is available from Security Supervisor Josef Spitzer.
- 1.3 All safety instructions and measures must be followed. Instructions which are contrary to these Safety Regulations must not be followed.
- 1.4 Working in the laboratory and workshop areas is prohibited without prior instruction in the specific risks and appropriate behaviour in the relevant domain (electricity/electronics, robotics, hydraulics/pneumatics and mechanics).
- 1.5 Instruction shall be given by the person appointed for this purpose with the support of the relevant documentation.
- 1.6 Knowledge of the rules listed under points 2 to 8 does not replace instruction as defined above.
- 1.7 Before starting work in the laboratory or workshop areas, all employees, students and interns must confirm in writing that instruction has been given.

2. Regulations for working with electrical and electronic systems

- 2.1 Before it is switched on, all employees, students and interns have to familiarize themselves with the construction and method of operation of an electrical set-up as well as with the operating instructions of the equipment used. Furthermore they are obliged to inform themselves of exactly how the entire set-up can be switched off rapidly, i.e. they must know where the "emergency shut-down button" is located for every individual electric circuit.
- 2.2 All employees, students and interns have to observe the following safety regulations when operating in and at electrical equipment and installations.

The five safety rules

- Disconnect completely from power supply.
- Secure against re-connection.
- Verify that the installation is dead.
- Carry out earthing and short-circuiting.
- Provide protection against adjacent live parts

Once work has been completed, these measures are reversed analogously.

- 2.3 Before using electrical equipment or installations, ensure that they are in perfect working order.
- 2.4 Only use the switches and settings intended for this purpose. Settings on safety devices must not be changed.
- 2.5 As a matter of principle, do not use electrical equipment or installations when they are wet, even if it is only your hands or your feet that are wet.
- 2.6 Switch off the power supply as soon as a malfunction occurs.
- 2.7 Do not attempt to repair electrical equipment and installations when you do not possess adequate knowledge of the associated dangers and how to work safely.
- 2.8 Before using electrical devices which are fixed or moveable, familiarize yourself with any special safety measures and stick to these safety measures strictly, particularly when the equipment is being used in a special environment, e.g. extreme heat, cold, chemical influences or in areas at risk of fire or explosion.
- 2.9 If installations or electrical equipment is found not to be working perfectly in accordance with the safety regulations, the defect must be reported immediately to the appropriate employee. The equipment or installations must not be used anymore; other persons must be prevented from using them and attention must be drawn to possible dangers.
- 2.10 Changes in the construction of electric circuits and systems must only be carried out when voltage-free. Circuits which are live should not be left unattended. Should this not be possible, a warning sign must be affixed. Sufficient protection against accidental contact must be ensured.

When working with voltage above 50 V, with uninsulated equipment, control boxes or on experimental set-ups with uninsulated mains connections, or with equipment for which the protective measures preventing too high a contact voltage in accordance with ÖVE E8001/NIV/NIN (VDE 0100) have been temporarily switched off for measurement purposes, this is only allowed when a second person is present in the laboratory area.

When working with circuits with operating voltages over 50 V, protective measures are to be applied in accordance with the Regulations of the Austrian Electrotechnical Association (ÖVE). In such circuits, it is forbidden to make any changes to the circuit while the set-up is live. Before making any such changes, the main switch must be used to disconnect the experimental set-up from the operating voltage. Then the person who intends to make changes to the circuit has to personally make sure that the circuit is voltage-free. Under no circumstances should uninsulated live circuit components be touched when the set-up is switched on. Outside normal operating hours, at least one skilled employee must be present in the above-mentioned cases.

- 2.11 Specific regulations for the prevention of accidents and operating instructions are to be followed.

3. Regulations for working in laboratory areas

- 3.1 Persons who do not belong to the *Institute of Networked and Embedded Systems* may only enter the laboratory area with the explicit permission of one of the Institute's employees.
- 3.2 Hearing protection must be used when noise levels are high.
- 3.3 The laboratory areas and their equipment must always be kept clean and tidy; particularly after work has been completed, laboratory workstations are to be tidied up and the doors must be locked.
- 3.4 Smoking in laboratory areas is prohibited.
- 3.5 Systems operating automatically must not be left unattended.
- 3.6 It is not allowed to remain in danger zones.
- 3.7 Observe the relevant operating instructions.
- 3.8 Safety equipment must not be removed, altered or deactivated. Installations with faulty safety equipment must not be set in operation.

4. Regulations for working with hydraulic and pneumatic systems

- 4.1 The general regulations applying to constructing and operating hydraulic and pneumatic systems are to be observed.
- 4.2 Only competent and expert employees may carry out work on hydraulic systems.
- 4.3 Regulations for the prevention of accidents and operating instructions are to be followed.

5. Regulations for working in mechanical workshop areas

- 5.1 Machine tools must only be used after thorough instruction and in the presence of a second person. The appropriate personal protective clothing is to be worn.
- 5.2 Regulations for the prevention of accidents and operating instructions are to be followed.

6. General regulations

- 6.1 When working with equipment with rotating shafts, tight-fitting clothing should be worn. It is forbidden to wear jewellery (necklaces, bracelets, rings, etc.).
- 6.2 Before leaving the workstation, all equipment must be unplugged. Pneumatic and hydraulic installations in particular must be switched off and depressurized.
- 6.3 The laboratory and workshop areas and all equipment must always be kept clean and tidy; particularly when work has been completed, laboratory workstations are to be tidied up, the windows must be closed and doors locked.

6.4 Any warning and information signs must be observed.

7. Computers, equipment and tools

- 7.1 Computers, equipment and tools are to be handled carefully. Any damage to these must be immediately reported to the appropriate employee. Users are liable to pay full compensation for any damage caused by gross negligence or deliberate action.
- 7.2 After use, all equipment and tools must be returned to their proper storage sites. If an installation is in operation throughout several days, a notice must be affixed to this effect.
- 7.3 It is forbidden to install or uninstall software on laboratory or workstation computers unless your supervisor has given you explicit permission to do so.

8. Components, materials and orders

- 8.1 All materials must be treated carefully and used in such a manner that there is no unnecessary waste.
- 8.2 When using electric, electronic, pneumatic and hydraulic components, their technical specifications must be observed. Components which are damaged due to gross negligence or deliberate action must be paid for.
- 8.3 When taking components or other materials from storage, inform the appropriate employee when stocks are falling low.

Attachments to the Laboratory and Workshop Regulations

Safety equipment

1. Fire extinguishers

Carbon dioxide fire extinguishers or Water fire extinguishers are to be found in the corridor outside each of the laboratories. Prefer Carbon dioxide fire extinguishers for burning electronic devices.

2. First-aid boxes are to be found in the following locations:

- In the laboratory, room no. L4.1.02
- In the laboratory, room no. L4.1.05
- In the laboratory, room no. V.o.09
- In the laboratory, room no. V.o.22
- In the secretaries' office, room no. L4.2.10
- In the corridor of L2.a, level 0
- In the corridor of L2.a, level 1

3. Eye wash station

- Porter's lodge

4. First-aiders

- See attached First aid guide

5. Department of Building and Technical Services

- Head Erich Schauer ext. 9171
- Building & technical services hotline ext. 9108

6. Security supervisor

- Josef Spitzer ext. 9253 Mobile: 0664 301 15 78