# Laboratory Regulations for the Electronics and Electrical Engineering Laboratories in TE/MR

## Student Group

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# Laboratory Regulations for the Electronics and Electrical Engineering Laboratories in TE/MR

**Preliminary notes**:

Read these regulations and safety instructions **completely before the first lab appointment**.

## Responsible persons

| Activity | Name | Extension | email |
|---|---|---|---|
| Responsible professor | Prof. Dr. Tim Fischer | 07131 504-524 | tim.fischer@hs-heilbronn.de |
| Lab supervisor | Ralf Ziegler | 07131 504-306 | ralf.ziegler@hs-heilbronn.de |
| Safety officer | Armin Krüger | 07131 504-377 | armin.krueger@hs-heilbronn.de |
| Specialist for occupational safety | Thomas Mayer | 07063 951 137 | thomas.mayer@tme-online.de |
| First aiders | 07131 504-590/-286 | 07131 504-286 | uwe.feder@hs-heilbronn.de |

## Information for emergencies

| Service | Phone number | Comment |
|---|---|---|
| Fire department, emergency medical services, accident | 112 | |
| Police | 110 | |
| Poison control | 0761-192 40 | Poison Information Center Freiburg (VIZ) University Medical Center Freiburg |
| Emergency physician Dr. Möldner / Dr. Wenninger | 07131 25860 | Hellmuth-Hirth-Straße 1, 74081 Heilbronn-Sontheim |
| Hospital | 07131 490 | Klinikum Heilbronn Am Gesundbrunnen 20-26, 74078 Heilbronn |
| Caretaker/Facility management | 07131 504-205 | |

## Objectives

These laboratory regulations are based on several premises from which required actions are derived: The use of the laboratories shall be ensured in a way that complies with occupational

1. safety,
2. environmental protection, and
3. economic efficiency.

In principle, these objectives are achieved through

- compliance with various hygiene measures
- careful, competent, and intended use of the building, furnishings, facilities, systems, and equipment as well as
- economical use of resources

. They are intended to help ensure that the health and physical integrity of users are preserved, damage in case of accidents is avoided, and environmental impacts are minimized.

# Scope

- These laboratory regulations are binding for all users of laboratories **D041** and **C028** (ET Labor / EEE Lab, 2nd semester).
- Users are all persons who are within the effective range of an experiment, a test, or a work process in the laboratories, who operate equipment there, or who otherwise use the rooms.
- For room **D705**, these laboratory regulations also apply and are supplemented by an oral briefing during the first visit.

# Duties of users

- Users must take note of and comply with these laboratory regulations. This is documented in writing. By signing, it is confirmed that the laboratory regulations have been read and understood.
- The user confirms that he recognizes the House Rules of Heilbronn University.
- In case of a serious violation of the duties under these regulations, the user may be deprived of the workstation and/or participation in lab operations.

## Handling hazardous substances

- Hazardous substances (e.g., gasoline, solvents, acids, thinners, etc.) must not be brought along.

## Liability

- Each lab participant is responsible for his own work and the actions associated with it.
- Each lab participant is liable for damage caused by negligence or intent.
- In the event of violations of these guidelines, the lab participant may be excluded from the lab.

# Organizational procedures in the laboratories

## Before lab sessions

- The currently applicable hygiene measures must be observed.
- Inform the lab supervisor in the following medical cases and do not come to the lab on your own initiative in this case:
  - if you have medical implants (e.g., pacemaker), chronic illnesses (e.g., epilepsy), or other health-related or physical limitations,
  - if you are pregnant (alternatively, the staff of the “Family-Friendly University” of the Student Service Office can also be informed).
- Mineral water may be brought as a drink.
- Before starting and after ending work, washing and disinfecting hands in a restroom is recommended.

## During lab sessions

- Work in the lab in such a way that no one is harmed, endangered, or bothered more than necessary under the circumstances.
- Before carrying out experiments, users must inform themselves about risks and the corresponding protective measures based on experiment instructions, operating instructions,

and user manuals. Safety instructions in work instructions must be observed.
- Escape and rescue routes must be kept free of obstacles and sources of danger.
- Eating and smoking are not permitted in the lab area. Exceptions for drinking may only be granted by the lab supervisor/-master.
- When working alone, safety must be ensured. The principle applies: Working alone is not permitted if the work can lead to an injury that requires immediate assistance from a second person. When working alone, an immediate connection (e.g., via a mobile phone kept ready) to a staffed contact point (e.g., lab supervisor) must be ensured.
- Health restrictions such as dizziness or balance disorders must be reported to the lab supervisor/-master.

### Handling electrical equipment and installations

- Experimental setups may only be operated with extra-low voltages. (≤25 V AC or ≤60 V DC). This must be taken from the provided laboratory power supply. Therefore, it is prohibited to establish connections to mains voltage. The only exception is mains connection cables with a properly installed mains plug.
- Equipment may only be used for its intended purpose. Opening device covers and enclosures at the workstations is prohibited.
- Make sure that no materials such as paper clips, wire ends, tools, etc. are lying on power strips or supply ducts.
- Damaged equipment must not be used. Damage or defects must be reported immediately to the lab supervisor/-master. This requirement serves the safety of lab participants and the maintenance of lab equipment, not the pursuit of any person who may have caused the damage.
- Own experimental setups must undergo a safety check before commissioning. If required, an acceptance inspection by a lab supervisor must be carried out.

### After lab sessions

After completing experiments or other activities in the lab, the user must ensure that

- the workplace is left clean and tidy
- the de-energized state is established. This means:
  - For laboratory power supplies, if possible, set the voltages to “0”, switch off the device, and then remove all leads from the outputs.
  - Switch off all other devices and remove measuring leads if necessary.
  - The experimental setups must be dismantled and all components as well as any other equipment used, such as multimeters, pliers, etc., must be stored in their designated places.

## Conduct in case of accidents and fires

- In the event of accidents and fires, always pay attention to self-protection and remain calm.
- Injured persons or trapped persons must be rescued from danger areas.
- Injured persons must be given first aid immediately. First aiders must be alerted by phone.
- In the event of electrical accidents, the person under voltage must not be touched under any circumstances. The circuit must be interrupted immediately using the EMERGENCY STOP or by other means.
- If a fire breaks out, the fire department must be alerted. Until the fire department arrives, further spread of the fire should be prevented if possible. Non-helpers must leave the danger area. If the building is evacuated, the designated assembly points for persons must be visited.

# Entry into force

As of 03/03/2026, these laboratory regulations (latest version in the wiki from 2026/03/03) are valid in the laboratories mentioned above.

Prof. Dr. Tim Fischer

# Content-related procedure of the ET1 / EEE Lab

## Experiments

- Six in-person experiments on six different dates are scheduled per lab participant.
- The in-person experiments are carried out in pairs. Preparation and testing take place in the same groups.
- Two blocks, i.e., 180 minutes, are reserved for each lab session. **Depending on the preparation the lab can take longer**.
- All documents and further information are available in the course in ILIAS.

## Before the first experiment

- We recommend doing the preparation as group work. Prepare thoroughly for the experiments.
- As preparation time, you can plan 4 to 6 hours per experiment depending on your prior knowledge.
- The experiment documents do not need to be printed out and brought along.
- Non-participation due to inability to attend: Only important reasons for being unable to attend can be recognized, such as illness, urgent family matters, etc. Inform the lab supervisor early by e-mail. The experiment can then be made up at the “make-up date” or in the next semester.

## Start of the experiment in the lab

- Attendance is documented at each lab appointment.
- In the first 15 minutes, specific special features of the respective experiment are explained. Please be on time accordingly.
- **Punctuality is also assessed as part of the successful completion and thus passing of the lab**.

## Conducting the experiment

- The experiment protocol is filled out, supplemented, **and completed** during the lab appointment.
- Follow the instructions in the experiment protocol:
    - setup,
    - measurement,
    - documentation.
- In the experiment protocol, make all required entries:
    - fill in the tables of measured values,
    - add texts/sketches,
    - transfer screen images and
    - create diagrams.
- It is recommended to fill out the experiment protocol with pencil and/or erasable colored pencils.
- Please note:
    - measured values must be given with the correct physical unit,
    - the axes of diagrams must be labeled correctly and

    - the settings of screen images must be documented.
- All lab participants complete their own protocol.
- Without active participation, experiments cannot be recognized!

# Test

- In addition to the lab appointment, a test of approx. 15–20 minutes duration takes place for the lab group.
- The test for the in-person labs takes place in office D025b (Prof. Fischer); details are provided in ILIAS.
- The content of the oral examination consists of questions and tasks on the physical fundamentals of the current experiment.

# Recognition of the lab

The lab is recognized if the following conditions are met:

- 5 of the 6 (oral) tests were passed
- **and** all in-person experiments were recognized as “successfully conducted”

# End of the experiment

- A prerequisite for completing the experiments is a **fully completed, error-free protocol**. Pay attention to a clean presentation.
- Each lab participant has a protocol signed off as “recognized” by the lab supervisor. The lab supervisor documents this.
- For the in-person experiments, **no post-processing takes place**, not even as homework.
- Do not dismantle your experiment until the protocol has been signed off.
- Tidy up your workstation and restore it to an orderly condition.