

Rules for the Advanced Lab Course

The course begins at 8:30 h with the **handing-over of the written introductory part** and a **preliminary discussion** with the supervisor of the experiment. The semester course takes place each Monday and for the block course will be given an extra calendar.

If the introductory part is accepted by the supervisor you can use it as first part of your report. Each of the students within the group should take active part in this preparation process.

The **written introductory part** should concisely describe the fundamental physics of the experiment. It should moreover contain a schematic draft of the experimental set-up and the guidelines of the execution of the experiment. The length should not exceed five pages. Normally two pages are enough.

The **supervisor** instructs the students in using the equipment. The students are allowed to use it only after the approval of the supervisor.

During the execution of the experiment the students should prepare clearly arranged data sheets which have to be attached to the final report.

For the preparation of the experiment the students should consult the **script** and the appropriate literature. In the department library there are **folders** containing the most relevant literature for each of the experiments.

The supervisor can reject students **without sufficient written introductory part and knowledge of the basic ideas of the experiment**; he/she can reject them also **in case they come too late**. A compensatory appointment can be agreed upon discussion with the organizer responsible for the course.

Each report should clearly contain:

- a) the **name of the experiment**, dates, **name of the student**
- b) a **short description** of the relevant questions and an explanation of the subjects of the experiments as well as the physical quantities to measure. It should be originally drafted by the student. It should include answers to open questions in the script.
- c) The report should include the **experimental data** (that have to be completely and well presented with their units) as well as the description of the evaluation procedure and the used formulas. It should be possible to follow the procedure that leads to the final results. Original graphics and diagrams have to be included.
- d) The protocol should contain a **discussion** of the possible error sources affecting the results of the measurements and their causes. The students should learn where systematic errors occur and how they affect the measurements. For the representation of the experimental results it is necessary to calculate the errors, as experimental data without errors make no sense.
- e) A **summary** of the results have to be put in a separate section. Here a discussion of the measurement and of the involved physical quantities can be included as well as possible critiques concerning the experiment.

The protocols should be finished at the day of the experiment. It is worth pointing out that it is not the intention of the advanced lab course to force the students to work on unfinished protocols at home for several days after the end of the experiment. The biggest part of the report should be completed during the preparation process so that e.g. it should be clear which quantities are going to be measured and how they should be presented.

After the end of the experiment the supervisor attests the proper execution of the experiment by **signing the FP participation paper (Laufzettel)**. This signature is mandatory.

The **reports** have to be handed out to the **supervisor** or put into the **mail box** in front of room 0.4.01 **within 14 days** after the end of the experiment. The literature has to be returned to the library. Protocols handed out after two weeks without justification will be considered as “not sufficient”. Even in that case they have to be given to the tutors. In case of repetition the advanced lab course can only be finished by successful execution of an additional experiment. Each group can give one protocol provided that each of the students fully understands it. Separated protocols are also very welcome. Exceptions to this rule have to be **previously** authorized by the course organizer. In case one of the students in a group is not able to work on the protocol the partner has to finish it alone.

The supervisor will correct the reports within seven days. Three weeks after the experiment there will be a discussion between the supervisor and the students. This appointment needs to be agreed upon with the supervisor. The certification by the supervisor will be given only if the experiment has been well executed and fully understood. In case of deficiencies, even in the appearance, the report can be returned once for corrections and integrations. No more than seven days can be given for that. **If four weeks after the experiment** the protocol has not been finished and approved the experiment will be considered unsuccessful. In this case the student should look for another experiment. The **whole certification** for the experiments will be given by the supervisor after the presentation of the complete and correct protocol.

The final certificate of the advanced lab course will be provided by the course organizer typically at the end of the semester. The final mark for the performances of the student is the average mark of the experiments and the double weighted mark for the seminar presentation.

Experiments that have not been approved have to be repeated within the same semester. If the advanced lab course is not successfully completed please contact the organizer for a possible partial approval.

For better communication between the students and the supervisors there are **mail boxes** in front of room 0.4.01 provided for each of the groups and each of the supervisors.

Smoking is not allowed in the labs!