

# INSTRUCTIONS FOR THE PRACTICAL COURSE B AT THE INSTITUTES OF PHYSICS

February 13, 2020

Dear students,

In addition to the information given on the Practical Course B website, this instruction sheet provides all details about conducting the experiments and writing the corresponding protocols. To ensure a smooth and efficient run of the course, we would like to ask you to read it carefully and to follow the instructions stated herein throughout the course.

## General procedure

- For more information regarding current dates, organizational details, tutorials of the experiments and contact details of the tutors please visit the Practical Course B website using the following URL:

<http://www.physik.uni-koeln.de/617.html>

There you will also find a link to the **database for all practical courses**. This database serves for registration issues (see below), but its main purpose is to provide an overview of experiment appointments and statuses as well as being a tool for contacting the tutors. If you are not registered yet due to a former participation in Practical Course A, you can register via the “Sign up” (“Anmelden”) function.

## Registration, groups and appointments

- **Registration for Practical Course B is done via the database and requires that you have successfully finished Practical Course A.** Students who performed an equivalent basic practical course at another university have to contact the organizers directly in order to get registered.
- Upon registration, you may choose between the Practical Courses B **within 2 or 3 semesters**. Standard in the first case, for which you will receive a specified schedule of 9 experiments distributed over 2 semesters. The experiments are scheduled either on **Monday or Tuesday afternoon from 12:45 to about 17:30**. In case, you are regularly prevented at one of these two periods, you should inform the organizers. If both periods do not fit, you should choose the “3 semesters“ version, for which you will have to arrange the appointments of all 9 experiments individually with the tutors. Note, however, that due to radiation protection the experiments in the Institute of Nuclear Physics can only be performed on Monday, Tuesday or Thursday.

- The experiments are typically performed in **groups of 2–3 students**. In order to create a group, the student registering first receives a groupcode, which has be entered with the registration of the other group members. If you do not have a partner, we will assign the groups.
- The **registration deadline** and the date of the **organisational meeting with a briefing on security issues and radiation protection** are available on the Practical Course B website. **It is obligatory for all students to participate in this briefing in order to perform experiments of the Practical Course B. The validity of the briefing is 1 year.**
- About 1 to 2 weeks after the organisational meeting, all groups and appointments are announced in the database via “My Appointments“ (“Meine Termine“).
- If you are not able to keep an appointment, please contact the respective tutor in advance and sufficiently early to arrange a new appointment. If a tutor is prevented, you will be contacted via the e-mail address you provided during your registration.

## Experimental procedure and protocols

- Familiarizing yourself with the basic knowledge required for the respective experiment and working through the tutorial are vital elements of the practical course. Suggestions for further readings can be found in the tutorials or on their respective download sites.
- Prior to each experiment the tutor will assess whether the conditions for a successful performance are met. In case of insufficient knowledge, the performance of the experiment will be denied.
- The experimental setups and accessories are to be handled with care! Please follow the instructions given in the tutorial and respect the security instructions. If any doubts regarding the correct operation arise, please contact the tutor immediately.
- The correct performance of the experiment is documented by a database entry and, if applicable, by the tutor’s signature on the measurement report (“*Antestat*”, AT).
- For each experiment, every group must elaborate one evaluation report, which has to be of scientific style and should, in general, consist of the following structure:
  - Title page containing the name of the experiment, the names of the group members, the name of the tutor and the date of performance
  - Table of contents and bibliography
  - Short introduction of the basic ideas and principles of the experiment; description of the setup with sketches, circuit diagrams etc.
  - Measurement report containing all data that were not recorded with the help of a computer
  - Evaluation of the data; this must be comprehensible and, where applicable, include a complete error calculation or estimation.
  - Discussion of the results (quality, potential sources of errors, possible improvements, comparison to literature values etc.)

- The **submission deadline for the evaluation report is three weeks**. It has to be delivered in digital form (hand-written protocols have to be included in the appendix, if applicable) as a PDF file. The **deadline for corrections or rectifications is one week**. These deadlines also apply during the lecture-free time and there are corresponding deadlines for the tutors to review the reports and possible corrections.
- If a timely submission is not possible, contact your tutor **within the time limit**. He/she will then evaluate if and how far the deadline can be postponed.
- The successful completion of the experiment will be documented in form of a database entry (“*Endtestat*”, ET).
- **Never try to produce a report via “Copy & Paste”. In such a case, your group will immediately fail the Practical Course B.**

## Exams and grades

- In each subject area (atomic and molecular physics, solid state physics, nuclear physics) you have to pass a final oral exam of 20–30 minutes. The exams are taken by a professor of the respective subject area after you have gathered all the ETs in that area. The grade of the Practical Course B is the mean of the individual grades of the three exams.
- To bindingly sign up for an exam, you have to visit the examination office (Mrs. Herrmann). If you fulfill all qualifications you will be entered as an exam candidate for a given timeslot of your examiner in the database. Possible timeslots can be looked up in the database via the link “My Exams“ (“Available exams“). A timetable can be browsed for available exam timeslots marked by “B\_Prak - “ and the name of the issuing institute. Timeslots marked by “AP“ are for Practical Course A only.
- Oral exams are offered regularly and can be looked up in the calendar application of the database. If there are no open slots for the next 1–3 months, please inform the organizers of the Practical Course B. Do not contact the professors directly in order to arrange individual exams.

## Contact information

For any further information you may send an e-mail to

praktikumb@ikp.uni-koeln.de

or contact one of the coordinators listed on the website of the Practical Course B.