## Hints on the grading of undergraduate laboratory achievements

1. Each completed laboratory experiment will be graded by the supervisor. The grading is done on a point scale from 3 to 12 points; for less than 3 points the experiment is considered to be failed. The grading is completed by the supervisor at the end of the laboratory time provided for the respective experiment, after the laboratory record was finished. The final grade is recorded both on the laboratory record and on the grading sheet. In exceptional cases, when the laboratory record cannot be finished in a reasonable time, a preliminary grading is done and recorded on the unfinished laboratory record. The preliminary grading includes a list of tasks still to be completed. Within two weeks the finalized laboratory record has to be presented to the supervisor for final grading. Otherwise the experiment is considered as failed.
2. Necessary prerequisite for the admission to an experiment is the preparation of the laboratory record and the knowledge of the necessary physics basics. The basic knowledge for the admission to the experiments can be assessed at the beginning, during or after completion of the experimental work. Generally a brief control of the basic knowledge is done by the supervisor before the start of the experiment. If the student is not sufficiently prepared, the experiment may not be carried out and it is the responsibility of the student to arrange for a repeat date.
3. Criteria for the grading of a laboratory session are the level of basic physics knowledge, the quality of the experimentation, the analysis of the measured data including the estimation of the measurement uncertainty, the correct statement of the results, the concluding discussion as well as a clear and correct laboratory record. The student is informed of shortcomings and mistakes, if any, and will be granted the opportunity to correct these. If, in exceptional cases, the corrections have to be made at home, the student receives a preliminary grading on the laboratory record.
4. If a laboratory session is graded with less than 3 points, the student has to repeat the experiment or has to perform an alternative experiment as decided by the head of the Undergraduate Physics Laboratory.

The final grade of the laboratory module is obtained from the following conversion table on the basis of the average value of the points achieved in the individual experiments.

| Average | $>11,5$ | $>10,5$ | $>9,5$ | $>8,5$ | $>7,5$ | $>6,5$ | $>5,5$ | $>4,5$ | $>3,5$ | $\geq 3,0$ | $<3,0$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Grade | 1,0 | 1,3 | 1,7 | 2,0 | 2,3 | 2,7 | 3,0 | 3,3 | 3,7 | 4,0 | 5,0 |

## Assessment of an individual experiment

The number of points obtained for a single experiment are awarded in three categories preparation and basic knowledge / experimentation / analysis and laboratory record. In each category at least one point has to be achieved. For the transparent presentation of the assessment the following chart is used.

| Name | Experiment |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| Category | Points |  |  |  |
| Preparation / Basic Physics Knowledge |  |  |  |  |
| Experimentation |  |  |  |  |
| Results / Measurement Uncertainties / <br> Protocol |  |  |  |  |
| Points (total) |  |  |  |  |

