

Physics 1 (CTU, FEL) – rules

rules of teaching, assessments and exams including distance learning

Lectures

If on-site teaching is not possible, the lectures take place remotely by video streaming with the possibility to watch the lecture later from the recording (Youtube). Teaching takes place according to the schedule, or according to the agreement with the students.

The lectures include interactive communication with the teacher (Teams), if the technical conditions allow. Alternatively, consultations are held in agreement with the students.

Lectures are supported by teaching materials (Moodle).

Seminars

If on-site teaching is not possible, the seminars take place in an interactive distance form showing and discussing example problems and solutions (Teams). Teaching of the seminars takes place according to the schedule, or according to an agreement with the students. Problems to solve can also be assigned for homework. The seminars are supported by study materials (Moodle).

During the semester, two written tests will be organized (either in a remote or on-site form). The tasks in the test represent problems to solve or theoretical questions. Recommended procedure for solving the problems: initial relations, general procedure of solution, final formula, numerical result with dimension (units). The theoretical part of the test focus mainly on the knowledge of basic relationships, or their derivation and simple physical problems. Only a flawless solution including the correct procedure and initial relations will be evaluated by the full number of points given for each problem. The teacher will evaluate a partially correct solution (correct initial relations, completeness and correctness of the procedure, etc.) with a lower number of points.

In the case of a justified and duly excused absence to the written test, students will be allowed to take a substitute assessment test at the beginning of the examination period (usually the 1st week). The substitute test will be from the whole subject matter of the semester. Students who want to correct one of the regular tests can also take part in the substitute test, provided that the result of the regular test is annulled in advance and the result of the substitute test applies instead.

In total, it will be possible to get **40 points** (2x20 points) for both tests. Students can also get up to **5 points** for the correct solution of web tests and **5 points** for active completion of homework.

Laboratories

Students are required to participate in laboratory experiments from Physics during the semester. Students carefully prepare for the experiment in advance by studying the instructions (Moodle). They also must get acquainted with the safety rules for working in the laboratory. The student is evaluated for his/her preparation for experimental tasks, quality of laboratory reports, and keeping of a laboratory notebook (lab book). If a student is not properly prepared to measure the given laboratory task, he/she can be evaluated by the instructor with negative points (up to -2 points/task).

Submission of reports takes place according to the teacher's instructions, by default via Moodle. Students submit 2 reports for the experimental tasks selected by the teacher. The elaboration of reports follows standard rules (see presentations and files on Moodle): students study instructions for experiments, instructions for elaboration of reports and evaluation of uncertainties, each student

elaborates the report separately, etc. The reports are scored. Students get a feedback and opportunity to correct the first report. Students keep a **laboratory notebook** (lab book) from all the performed experiments, where they also process and comment the measured data. At the end of the semester, the lab book is also scored.

If on-site teaching is not possible, i.e. in the case of distance learning, the teacher will present multimedia demonstrations of experiments with interactive explanation and discussion (Teams). Teaching takes place according to the schedule, or according to agreement with the students. Students will be provided with measured data for the elaboration of lab reports. In this case, the lab book is not kept. Instead of tasks, where reports are not submitted, students must complete Moodle assignments. Typically, the task requires to state the result of the experiment including the uncertainty and units. The necessary measured data are again provided to students. In total, it will be possible to get up to **20 points** for laboratories.

Assessment conditions

Assessment is required for taking the final exam. Recurrent students may not have an assessment older than two years. To obtain the assessment, it is necessary to **obtain at least 35 points** from the total of 70 points during the semester, complete all laboratory assignments, **submit all protocols and complete all tasks** for laboratory assignments, while the student must obtain a total of **at least 20 points** from the assessment tests and **at least 10 points** from the laboratories.

Exam conditions

It is possible to get up to 70 points in the teaching period of the semester. A student who obtains at least **60 points** during the semester can apply for an **E grade without passing the exam**. If a student decides to take the exam, then he/she loses this possibility and the same criteria will apply to him/her as to other students.

The final exam consists of two parts. All students registered for a given date **first complete a written test** with problems to solve and theoretical questions, which is scored. The student must obtain at least half of the points (15/30), otherwise he/she will fail the exam, regardless of the number of points in the semester. According to the points, a preliminary grade is then determined according to the table below. Either only the point evaluation of the test itself will be used, or the sum of points for the test and work in the semester, depending on where the student gets a better grade.

Students who thus obtain at least a grade of C continue to the **oral part of the exam**, where their knowledge and understanding of the subject matter of Physics 1 will be verified. The oral part takes the form of a discussion on the assigned questions. The student is given time to prepare. The result of the oral part of the exam can be a better, the same, or worse grade (also grade D) than the result of scoring. The student may decide not to take the oral exam, in which case he will automatically receive a grade D. The student has the option not to accept the final grade, get F mark, and register for the exam in another free term again.

Evaluation			Exam written test	Exam test + points from the semester
A	excellent	1	25	90
B	very good	1-	23	80
C	good	2	20	70
D	satisfactory	2-	18	60
E	sufficient	3	15	50

Regardless of the number of obtained points, the student will also fail the exam if he/she does not know the perfect answer to questions concerning the following knowledge of Physics 1:

1. Basic SI units.
2. Newton's laws of motion.
3. All discussed physical laws of conservation.
4. Newton's law of gravitation.
5. Kepler's laws.
6. Lagrange equations of the 2nd kind.
7. Continuity equations for fluids and electric charge in integral and differential form.
8. Postulates of special theory of relativity.
9. Coulomb's law of electrostatics.
10. Maxwell's equations in integral and differential form.

The final exam is preferably **conducted on-site**. If this is not possible due to restrictions in an emergency state, the exam proceeds within the rules set by the faculty management, resp. rectorate, for this situation. In case a remote exam is necessary, students are typically sent an exam test and they are given a limited time to complete and submit it (Moodle or email according to the examiner's instructions). A subsequent oral part takes place as a video call with the examiner (Teams).