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| Level: bachelor | | | | |
| Course title: Methods of measurement and data processing | | | | |
| Status: obligatory | | | | |
| ECTS: 5 | | | | |
| Requirements: | | | | |
| Learning objectives Advanced introduction of students to the development and implementation of an international system of units in science and technology. - Mastering the estimation errors, - Acquisition of knowledge and skills required in the processing of the results of physical experiments, as well as in the evaluation of the data, - Knowledge acquisition for processing and presentation of results. Students learn to use the computer processing of the experimental data. | | | | |
| Learning outcomes Knowledge of the proper ways to display the measurement results. Knowing the basis of analysis of physical experiments. Enabling students for initial independent and successful implementation of statistically processing (collection and delivery) data in the experimental work. Training them to independently assess and perform the necessary calculations in planning of the experiment. | | | | |
| Syllabus <i>Theoretical instruction</i> Measurement. The role of the experiments in physical research. Principles of performing physical experiments. Systems of physical quantities. Relation between physical quantities. History of measures and units. International system of units. Dimensional analysis. Uncertainty in experimental results. Accuracy and precision. Reporting measurement results. Graphical presentation of the experimental data. Measurements and statistics. Probability distribution. Propagation of uncertainties. Sampling in data analysis of physical experiments. Method of least squares. The application of computers in data processing. <i>Practical instruction</i> Computational exercises follow the program of lectures. | | | | |
| Weekly teaching load | | | | Other: |
| Lectures: 2 | Exercises: 1 | Other forms of teaching: 0 | Student research: | |