

**DESIGN LABORATORY ASSIGNMENTS AIMED AT THE FORMATION  
OF EXPERIMENTAL SKILLS**

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**ABSTRACT**

In this article, the author cited techniques for designing laboratory assignments aimed at the formation of experimental skills.

**Keywords:** exhibitionism, Project, creative, logical, earistic, creativeness, competence.

**INTRODUCTION, LITERATURE REVIEW AND DISCUSSION**

The activity and independent work of the educators, their creative approach to the issues posed in the educational process, as well as their research are in high demand, will have a significant effect. One of the effective tools of creative education in the professional training of future physics teachers is the system of assignments aimed at the formation of skills for solving the experimental problems of teaching physics in general secondary schools and secondary special, vocational education institutions. Experimental skills can be developed on the basis of practical and laboratory exercises with students, on the basis of their creative activity.

Chapter one of this study chapter three analyzes the didactic requirements and opportunities in the formation of extramural skills of existing laboratory work based on the ways of their expansion. This paragraph describes the methodology for designing laboratory work based on the methodological views and recommendations presented in Chapter One.

To do this, on the topic of laboratory work related to the course of General Physics:

1) the goal is determined, that is, the appropriateness of the educational content to the goals is determined;

2) will be introduced to theoretical knowledge, will be able to determine the physical essence of the given dimensions and their role in the content of physics education;

3) equipment necessary for laboratory work is selected;

4) the device of laboratory work is assembled, attention is given to logical sequence and appearance when placing measuring instruments and other instruments on the laboratory table;

5) the stages of performing laboratory tasks are determined;

6) the search for answers to the questions that lead to the goal (these questions are drawn up based on the knowledge received by the student in secondary schools and secondary special, vocational education institutions);

7) experiments are carried out on the basis of the items specified in the order of performance of work;

8) the results of the experiment are calculated;

9) an error in the experiment is detected;

10) begins to perform the task corresponding to the subject of laboratory work (the execution of the task requires both theoretical and experimental knowledge and skills from the student, creates in the student a sense of self-confidence, aspiration, work on literature, self-control and self-assessment skills).

11) Methodical instructions are offered for assignments;

12) Necessary literature is recommended for each teaching assignment.

The didactic aspects of laboratory assignments that form the experimental skills are as follows: the provision of purposeful teaching; the choice of common methods of solving experimental issues, the given teaching material; the modeling of the Real process, based on the organization and recommendation; the formation of a methodical culture, assuming the scientific justification and understanding of the expediency of this or that method. Based on these requirements, we tried to design and systematize laboratory assignments in our research. In the preparation of the assignments: A) to realize the inalienable link between theoretical and practical education, the formation of experimental skills of future physics teachers, the development of research activities; B) to make rational use of reproductive and productive methods of teaching, the introduction of innovative methods of teaching; C) to coordinate-resurrection of individual, group and team forms of teaching; D) to evaluate

The content of laboratory assignments is based on the fact that the general physics course corresponds to the training program and is able to formulate the creative and practical activities of students based on the requirements of the content of Education. The recommended assignments are of experimental nature and consist of a sequence of practical and theoretical processes performed by students under the guidance of the teacher. The subject of the assignments is required to correspond to the subject of the laboratory work performed. Its main purpose is the formation and development of physical concepts, laws, theories, thinking, independence, experimental skills and skillstirishga, including the ability to observe physical phenomena, perform simple experiments, measurements, be able to use tools and materials, analyze, summarize and draw conclusions about the results of experiments.

Assignments are structured for the existing work in the laboratory of electromagnetism and their content, which is studied in the laboratory classrooms, are inextricably linked with the teaching material. This allows the assignments to be performed regularly throughout the entire semester, while at the same time conducting physics training on an experimental basis.

When compiling assignments on each topic, attention is paid to the importance of experimental skills and skills, along with theoretical knowledge, for the study of a physical phenomenon, or law. The assignments correspond to the student's cognitive abilities, which gradually become complicated to the extent that they help to gradually formulate the skills and qualifications of the students, the system of knowledge. In addition, assignments also contribute to the development of students' thinking, because they motivate students to perform mental activities (analysis, synthesis, comparison, generalization, etc.) and create an opportunity for self-control. The development of students' thinking skills and the activation of self-control is carried out by putting relevant problems in the process of completing assignments. The problems attract the attention of the students, to the important aspects of the events under study, the direction of understanding their work and the results obtained.

Studies have shown that assignments serve as three main — teaching, developing and educating tasks that serve as an effective means of faollashtiring physical education. The assignments contribute to the formation of students' experimental skills and skills, the system of theoretical knowledge, their thinking skills, creative orientation to the phenomenon under study, as well as the development of professional and pedagogical training and create conditions for the implementation of the principle of continuing education.

As a result of the regular performance of the assignments, the skills of applying theoretical knowledge to practice are formed in the students. At this time, they contribute to the development of students' independence and initiative, arousing interest in science and pedagogical activity in them. Form qualities such as being observant, attentive and persistent, able to work meticulously. The assignments will enable students to prepare for the implementation of the laboratory work and practicum provided for in the programs of electrotechnics, radio engineering and school physics experiment techniques, which will be taught in subsequent courses.

Pedagogical laboratory work from General Physics in higher educational institutions has goals in harmony with the priority requirements of Education. In

order to carry out each laboratory work for these purposes, it is possible to evaluate their overall effectiveness on the basis of certain criteria. The possibilities of some laboratory work in the formation of experimental skills in the field of baccalaureate physics education were evaluated. The attention was drawn to the fact that each laboratory work in Bunda meets the following requirements and meets the criteria:

1. Integration with secondary schools, academic lyceums and vocational colleges programs;
2. Deepening theoretical knowledge;
3. Formation of generalized experimental skills and skills;
4. Implementation of Predmetlararo links;
5. Demonstrate students ' creative abilities;
6. Formation of students ' independent performance skills;
7. Help to master the physical theory;
8. The use of the results of the obtained experiment in post-laboratory work;
9. Formation of the scientific worldview of future teachers;
10. The possibility of using existing statistical methods in the processing of experimental results (calculation of errors);
11. Focus on mastering professional experimental skills;
12. Application of mathematical techniques to theoretical foundations.

In addition, the implementation of stratified concomitant in laboratory work, individual concomitant opportunities for senior students were also studied. The stratified approach can be reflected in the system of structured assignments suitable for laboratory work and experimental issues.

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