PEDAGOGICAL SCIENCES

PRINCIPLES OF DISTANCE PHYSICS COURSES ORGANIZING IN ORDER TO FACILITATE STUDENTS' PROFESSIONAL SELF-DEVELOPMENT

Halushchak Iryna,
Ph.D., Associate Professor
Kharkiv National University "Kharkiv Polytechnic Institute"

The formation of a professional occurs in the unity of professional and personal development and self-development. One aspects of professional and personal self-development of a specialist is the activity of the future specialist, which triggers the mechanism of self-development. The process of self-development is characterized by the students' ability to deeply realize their own responsibility for this process and to regulate it. Perception of oneself as a subject of professional development is manifested in the desire and ability to constantly analyze, adjust and improve their own professional growth, the desire for independence in the selection of methods and techniques for organizing the educational process.

Modern forms and methods of organizing the educational process in high education institutions help to stimulate certain motives under the influence of which students set and achieve specific goals.

In modern conditions of rapid development of science and technology, rapid accumulation and updating of information, it is impossible to teach a person for life. It is necessary to arouse the interest in knowledge, to teach the person to learn. Modern society constantly demands from the individual adequate changes. Based on this, there is a need to prepare students for independent learning, which has led to the transition from mechanical accumulation of knowledge to the development of skills and abilities of each student. Due to reach this purpose, more and more attention is paid to the organization of independent work of students

In the process of independent work, students develop the ability to understand, identify and formulate their cognitive and information needs, request information, skills of search, selection, analysis and systematization, as well as the transfer of information.

Independent work is a means of forming professional competence, a way of self-development, self-organization and self-control of students. This is organized and controlled by the teacher activities of students, taking into account their psychological characteristics and intellectual knowledge

When mastering fundamental courses, in particular a course in physics, distance learning courses help to organize independent work. Working with such courses, the student learns without direct contact with the teacher or guided by the teacher indirectly - through special educational materials. Such work should become an integral part of the learning process. It involves individual work of students in accordance with the

teacher's attitude and curriculum. This is a planned work of students, performed on the task and under the guidance of the teacher, a form of organization and implementation of educational and cognitive activities of students, which is directed and controlled by the teacher or the student in accordance with the curriculum and individual needs in extracurricular time due to master skills and abilities and for self-improvement. The main purpose of such work of students is to improve professional training, aimed at forming an effective system of fundamental and professional knowledge, skills and abilities that they could freely and independently apply in practice. This work helps to prepare competitive professionals who are able to creatively and quickly solve non-standard problems with the most significant effect.

When mastering fundamental courses, in particular a course in physics, distance learning courses Independent work of a student with distance courses is a way of active, purposeful acquisition by a student of new knowledge and skills for him. No external action will replace or equate in efficiency with independent activity. But to implement this form of educational activity is possible only if a number of conditions are met. The most important of them are the presence of motivation and basic learning skills of independent work of students, as well as the effective organization of their educational activities by the teacher.elp to organize independent work. Working with such courses, the student learns without direct contact with the teacher or guided by the teacher indirectly - through special educational materials. Such work should become an integral part of the learning process. It involves individual work of students in accordance with the teacher's attitude and curriculum. This is a planned work of students, performed on the task and under the guidance of the teacher, a form of organization and implementation of educational and cognitive activities of students, which is directed and controlled by the teacher or the student in accordance with the curriculum and individual needs in extracurricular time. skills and abilities and for self-improvement. The main purpose of such work of students is to improve professional training, aimed at forming an effective system of fundamental and professional knowledge, skills and abilities that they could freely and independently apply in practice. This work helps to prepare competitive professionals who are able to creatively, quickly solve non-standard problems with the most significant effect.

Independent work of a student with distance courses is a way of active, purposeful acquisition by a student of new knowledge and skills for him. No external action will replace or equate in efficiency with independent activity. But to implement this form of educational activity is possible only if a number of conditions are met. The most important of them are the presence of motivation and basic learning skills of independent work of students, as well as the effective organization of their educational activities by the teacher.

As the purposes of independent work with distance courses it is possible to define: development at students of strong skills of independent work with educational, scientific, reference literature; formation of skills to rationally organize mental work, in the process of which the student intensifies his efforts to understand, memorize and assimilate educational material; development of the ability to self-knowledge and reflection, increase self-confidence and self-efficacy; adequate self-esteem, ability to

self-improvement; drawing up a personal program of the educational process with a clear understanding of the terms of its implementation.

To increase the effectiveness of teaching with the use of distance courses, theoretical and methodological analysis of the forms and methods of organization of such courses is required, as well as providing teachers and students with didactic and methodological materials.

The achievement of the set goals is directly influenced by the organization of the distance course. Placement of the curriculum of the discipline, the introductory part, which explains the purpose of the course, work order, procedure and deadlines, the necessary requirements for obtaining a final grade, weekly course plan will help students not only in drawing up a personal curriculum, but also in its planned implementation. Course material should be presented in a language of sufficient scientific level, but at the same time accessible for students to understand and study the relevant courses. Physics courses differ from many other courses in that they contain descriptions of physical phenomena and experiments, physical definitions and laws in a combination of their physical essence and mathematical expression. Therefore, special attention should be paid to the formation of textual content on the screen. In most cases, it is advisable to place the formulas on a separate line and number them. The most important theses can be highlighted in color, italics etc. It is better to explain the fundamental points for understanding the topic, but there should always be also students' independent search of additional knowledge and independent mental work on understanding the essence of the provided material.

According to the recommendations of experts, it is optimal to place 2 - 4 screens with text under one heading. The text of each lecture and practical sessions should be clearly structured with the definition of the individual topics of each lesson. To understand the physical essence, it is necessary to place illustrations in the topics of the course in the form of drawings, graphics, photographs. It is advisable to use animation and videos with demonstrations of physical phenomena with comments and educational information, on the history of physics, the history of discoveries. The educational component of the courses is important: placement of interesting data from the biographies of physicists, information about the latest physical research in verbal and multimedia form.

While developing of distance courses in physics, one of the goals is to create a basis for the formation of a holistic physical picture of the world. On the other hand hand, students should understand the usefulness and expediency of working with courses on the active application of the results of this work in training and future practice. Thus, the course, should provide information on all major areas of knowledge in the field of general physics, set the direction for in-depth acquisition of physical knowledge that has a practical connection with the specialty in which students study. This approach to teaching creates an additional motive for activating independent work of students.

Courses should include links to educational, additional literature, and may include topics for further reference.

In any form of learning, the teacher's personality plays an important role. The professor can be an example for the student as a professional and creative person. The professor can and should help the student to discover and develop their potential, to

determine the prospects of their inner growth. Professors can stimulate students to creative research, methodical activities. Therefore, the organization of communication with the professor becomes especially important: time of consultations, creation of offices for the analysis of the executed tasks, for individual communication of the student with the professor concerning development of creative potential.

An important factor is the organization of self-control: in the form of questions to the studied topics, modular and semester tests, which will help the student to structure, highlight, master the current material and physics course in general as a holistic system of knowledge in this field.

The development of global computer networks has created a fundamentally new situation in working with information. Computer tools, the Internet provide an opportunity to activate the cognitive activity of students, generate additional motivation for learning, opportunities to individualize learning. The organization of independent activity of students when working with distance courses involves a flexible system that allows you to acquire knowledge where and when it is convenient for them. It helps to form communication skills, the ability to extract information from various sources, process, store, quickly exchange it with the help of modern computer technology. The advantages of teaching physics with the use of distance courses are the convenience and clarity of the presentation of the material, the ease of its movement, the ability to quickly find the necessary information, to show the process being studied, or a phenomenon in dynamics.

Distance courses provide students with training tasks and exercises, evaluate their performance, provide prompt assistance in the form of tips, explanations of common mistakes, presentation of relevant theoretical material, examples of solving physical problems. The efficiency of using distance learning courses in solving typical and atypical problems is 30-40% higher compared to non-computer methods.

References:

1. Азимов Э. Г., Щукин А. Н. Новый словарь методических терминов и понятий (теория и практика обучения языкам). М.: ИКАР, 2010. 448 с.

2. Ягельська Н. В. Методика організації самостійної роботи студентів з англійської мови з використанням професійного мовного портфеля: автореф. дис. канд. пед. наук: 13.00.02 / Н.В. Ягельска. – К., 2005. – 23 с.

3. Дистервег А. Руководство к образованию немецких учителей / А. Дистервег // Избранные педагогические сочинения. М., 1956. – 374с.

4. Технологии и ресурсы электронного обучения Д Руткаускьене, Р Кубилюнас, Д Гудониене… - Харьков: Точка, 2011

5. Модель системы дистанционного образования в техническом университете – Образование и виртуальность-2002 (ВИРТ-2002) ЛЛ Товажнянский, ВА Кравец, АФ Сук, НИ Косарева - Харьков-Ялта: УАДО, 2002