

**SOME ASPECTS OF INTERDISCIPLINARY INTEGRATION IN
IMPROVING THE TEACHING METHODS OF THE
"ELECTROMAGNETISM" DEPARTMENT OF PHYSICS AT SCHOOL.**

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Annotation: The course is only used chalk and a cloth. Students should use classrooms equipped with computers, projectors, and ICT software to teach effectively. Information technology plays an important role in the demands of daily life and the globalization of society. For example, the phenomena of electromagnetism, diffraction, interference, dispersion, polarization, and the processes of quantum, atomic, or nuclear physics are very difficult to read and understand only from a textbook and through the pictures depicted in it. If during a physics lesson a virtual presentation appears on a 3D screen that explains the topic of electromagnetism step by step, the reader will never forget such a presentation and can master deeply. This article covers the above topics.

Keywords: Integration, Non-Conventional Energy Sources, Complex Case Technology, Electromagnetism, Instrumentation, Metallurgy, Roller, Magnetic Field, Induction Sensors.

Introduction.

As the content of education in the teaching of natural sciences has increased in recent years, today's educators have an obligation to address their integration. If we approach this issue in the example of physics, we will be able to fully answer the questions of today's intelligent students in the process of teaching

a subject in the educational process, to increase their interest in science and with real-life examples in an integral relationship with other sciences. explanation is important.

In the process of physics education, the possibility of using the integration of sciences in the formation of the concept of non-traditional energy sources and their connection with other natural sciences, that is, the formation of knowledge and skills in non-traditional energy sources in physics education is important. When studying the modern foundations of energy sources in physics, of course, the study of the physical foundations of non-conventional energy sources is of great importance. Because human life and all other spheres cannot be imagined without energy supply.

So, it goes without saying that energy is theoretically and practically inextricably linked with a number of specific and natural sciences. For example, the integration of energy economics and mathematics in the efficient and economical use of energy resources and resources can lead to great positive results. The use of the integration of physical chemistry and ecology in the formation of fundamental information about non-traditional energy sources in physics education further enhances the effectiveness of the course. Using the integration of physics, chemistry and environmental sciences, it is necessary to develop a non-traditional energy technology map in physics education. These interdisciplinary connections, that is, the integration of information about non-conventional energy sources in the natural sciences in the process of teaching physics, help to integrate the subject in a complete, clear and understandable way.

When using science integration, the ability to fully and accurately master relevant information, knowledge and skills depends on the skill of the teacher. The following sequence of basic fundamental concepts for the integration of physical, chemical and ecological sciences in the formation of knowledge and skills about non-traditional energy sources in the process of physics education is applied in the course:

1. Non-traditional energy sources physical foundations;

2. Theoretical basis of the impact of non-conventional energy sources on the ecosystem;

3. Technology of chemical methods and techniques in the formation of non-conventional energy sources.

In the formation of the concept of non-traditional energy sources in physics education, it was found that using the integration of physical, chemical and ecological sciences, it is possible to increase the effectiveness of lessons by 20-25% compared to traditional types and methods of teaching.

We will consider the practical possibilities of using the case method in order to implement training based on a competency-based approach in the training of future bachelor's degree engineers in higher education in the example of the "Electromagnetism" section of the general physics course.

The core of complex case technology consists of illuminating the situation and tasks structured accordingly. In creating the case, we will analyze the syllabus of the special course and explore the possibilities of using the knowledge gained from some of the topics of the physics course included in it. We have chosen a special course "Theory of Measurement", because in this course, future bachelors will develop knowledge about the theory of measurements, develop skills in performing measurements and calculations, evaluate the results of measurements, as well as They will have measurement skills that will be needed in their engineering activities in the future.

It is possible to create a situational problem based on the identified problem. In order to solve this problem, it is necessary to pass the "Electromagnetism" section of the general physics course.

The text of the situational issue:

In the "Electromagnetism" section of the physics course, students can be offered the following topic as a project work: "Methods of using electromagnetic methods in quality control in industry." The project assignment is broader than the situational issue.

Therefore, its implementation is reflected in different types of activities:

- abstract, as a result of which different methods of electromagnetic quality control are introduced;
- design, as a result of which a device based on the electromagnetic method of quality control is created;
- practical, which focuses on the quantitative values of the technical characteristics of the device;
- presentation, as a result of which the project will be covered (presented) and prepared for its defense.

Certain types of activities vary depending on the level of complexity, which leads to the involvement of all students in the implementation of this project, depending on their training and capabilities. Before embarking on a project, it is important to identify ways to achieve the goal. The result of the project is to find a solution to a situational problem based on what I learned at the beginning of this Electromagnetism section. One way to solve the problem is to create a technical device based on the methodology of physical measurements [2-3].

Before proceeding with the project, it is necessary to get acquainted with the physical basis of measurement methods. One such method is the vicious current method. To understand the vicious current method, students are encouraged to consider the following topics: Introduction to the vicious current concept; get acquainted with the vector representation of the interaction of the magnetic field of the coil with the object of control; areas of application of the current method; state sensors (induction sensors); modern methods of recording vicious currents, and so on.

Created, this device is capable of modeling any software software, minimizing the design stages, performing schematic modeling, design development. Thus, the research was completed by solving a situational problem and solving career-oriented problems. This allows students to complete the tasks in the case based on the study of the specified sections of the physics course.

Conclusion:

In conclusion, this article analyzes the features of the integration of information technology in the study of physics, the integration of science and education, issues and problems of integration of science and education, the importance of organizing lessons using the features of integration in physics. done.

One of the urgent tasks today is the rapid development of science and technology after the independence of our country, the training of national personnel for all sectors of the economy in the current process of globalization. In the implementation of such important events and ideas, new requirements are set for physics, as well as for other sciences. The development of new methods of teaching physics, new problems, new exhibitions, new laboratories and new practicums, as well as the development of new methods of teaching in connection with other disciplines are among the main requirements of the time.

References:

1. A.G.Ganiyev, A.K.Avliyokulov, G.A.Alimardonov "Physics Part II". Textbook for academic list and professional colleges.
2. M.Jumaniyozova . Integration of disciplines in teaching physics, "Continuing education"
3. A.I.Xonbabaev, N.A.Xalilov. "Basics of general electrical engineering and electronics". Tashkent, "Uzbekistan".
4. S.K.Vahobova. "Substantiation of topics of independent work in the field of basics of electrical engineering and electronics, development of methods of its organization". A dissertation written for a master's degree.
5. Apollonskiy, S. M. "Theoretical bases of electrical engineering". Electromagnetic field.
6. Yakovlev S. G. "Methods and apparatus of magnetic and vixretokovogo control".
7. Zubova N.V. Realization of complex case-technologies in the study of the subject "Electromagnetism". A: Pedagogue.