

**METHODOLOGY OF TEACHING ELECTROMAGNETISM
DEPARTMENT IN TECHNICAL HIGHER EDUCATION
INSTITUTIONS**

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Annotation: The article examines the special features of teaching the electromagnetism department of physics taught in technical higher education institutions, the task of study and its interrelationship with other sciences, analytical information and recommendations are given.

Key words: electromagnetism, venn diagram, methodology, physical process, geographic physics, electric current.

INTRODUCTION

Today, the interest and attention to the use of interactive methods, innovative technologies, pedagogical and information technologies in the educational process is increasing day by day, one of the reasons for this is that until now, traditional education If students are taught to acquire only ready-made knowledge, modern technologies teach them to search for the acquired knowledge by themselves, to study and analyze independently, and even to draw their own conclusions.

The selection of biophysics material for a physics course is indicated in three main directions: materials that allow students to demonstrate the unity of the laws of nature, and show that the laws of physics can be applied to a living organism; materials widely used in biology and medicine, allowing to demonstrate physical methods of exposure and inspection, and finally, materials that introduce students to some directions and results of bionics.

The geography course is connected with the electromagnetism section of the physical science by explaining such issues as electricity and water circulation in nature. In the course of geography, it is studied as a cause that transports moisture, heat, and mineral substances, and in the course of physics, it is studied as an example that helps to study aggregate changes of water, atmospheric pressure, etc.

The unique feature of the connection between the integrative teaching of the electromagnetism department of physics and the science of technology is that the technology course is a practical application of the knowledge acquired by students in physics classes. Two ways of using the physics course and technology science connection can be recommended.

LITERATURE ANALYSIS

We can see high-level methods in the works of Y. O. Tighina, Ye. A. Monastirniy, A. I. Popov, Y. I. Sokolova, foreign pedagogues who conducted research in the electromagnetism department of physics and wrote various books and sources. In addition, the book "General Physics Course" written by S. E. Frish and A. V. Timoreva contains good information about electromagnetism, which can be used as a teaching method in technical higher education institutions.

EMPIRICAL ANALYSIS

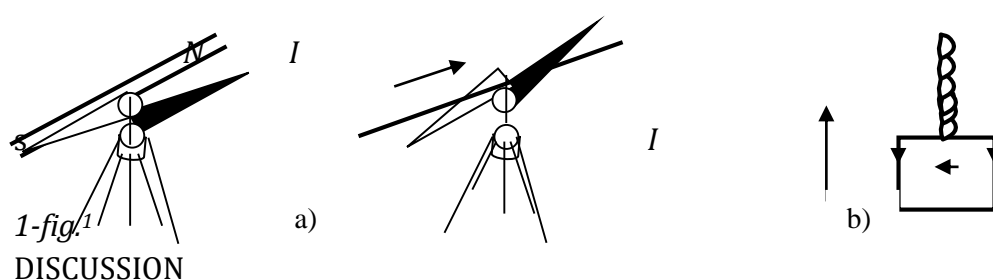
Before creating the methodology of teaching the electromagnetism department in technical higher education institutions, we need to provide information about the electromagnetism department of physics.

Electromagnetism is a department that studies magnetic phenomena that cause electric current, connections between magnetic field and electric current, magnetization of substances and their types, and methods of their practical application.

The doctrine of magnetic phenomena and magnetic properties of objects is called magnetism.

Magnetism is the interaction of electric currents, phenomena that occur in the process of existing interaction between currents and bodies with magnetic moments.

The initial study of electromagnetic phenomena and the magnetic field as a force field can be done in several ways. First, based on the effect of the field on a permanent magnet (magnetic arrow) (Fig. 1a). Secondly, based on the effect of the field on the closed contour (frame) of the current (Fig. 1b). Thirdly, based on the interaction of currents through their magnetic fields. All these methods are only methodological options for the beginning of the description of electromagnetism and lead to the same result in the description of electromagnetic phenomena.



Materials on the development of creative motivation, independent and critical thinking, professional skills and competence of students in the teaching of the electromagnetism department of physics, No. A-1-33 "Methodology of modular teaching of academic subjects in higher education institutions" and practice" (reference number 89-03-4149 of the Ministry of Higher and Secondary Special Education dated October 25, 2019). As a result, the content and essence of forming the professional competence of students was improved, and it allowed to increase the effectiveness of developing tutoring and mentoring skills in them by means of interactive educational methods and technologies;

Materials related to the design of materials related to electromagnetism department of physics, organization of case and demonstration experiments, integration of activity-related and organizational-pedagogical strategies are included in the content of the training manual "Methodology of applying innovative strategies in teaching physics" and applied to the educational process (Reference No. 89-03-4149 dated October 25, 2019 of the Ministry of Higher and Secondary Special Education). The introduction of these developed materials and training manual served to create a teaching-methodical complex of physics and increase the level of competence of students and teaching staff of higher education institutions.

Formation of professional competence related to person-oriented education, suggestions regarding interactive technologies are included in the content of the training

¹ Elektromagnetizm Referat-2019 www.arxiv.uz

manual entitled "Methodology of applying innovative strategies in teaching physics" (Higher and secondary special education reference No. 89-03-4149 dated October 25, 2019 of the Ministry). As a result, higher educational institutions have made it possible to enrich the educational and methodological support and develop theoretical knowledge and general and professional competences in students in the current directions of modern physics;

Proposals regarding the forms, motivational, activity-related and axiological components of students' independent creative work were used within the framework of the project number ITD-1.A-1-173 "Development of technology and methodology for the formation of education of young people specific to our national values" (Higher and secondary special education Reference No. 89-03-4149 of the Ministry of Education dated October 25, 2019). This project served to increase the priority of axiological components in the development of students' research, creativity, self-development, reflexive ability.²

One of the main processes of electrostatics is the electrification of bodies, that is, the process of charging. This process can be done in three ways:

- a) touching a charged body to another body - charging by transferring a positive or negative charge through contact;
- b) charging an object, for example, an ebonite stick, by rubbing it against fur;
- c) can be charged from a distance under the influence of an electric field. These three different processes are represented in a single Venn diagram with three circles.

The polarization of dielectrics can also be conditionally divided into three types. Under the influence of an electric field, the electron shells of an atom move relative to the nucleus. This shift leads to the formation of a dipole moment in the atom, that is, the centers of negative and positive charges do not overlap. This process is called electronic polarization. Ionic polarization occurs in ionic crystals under the influence of an external electric field. In this case, the ions change their positions under the influence of the field.³

CONCLUSION

Trainings on general topics are important in forming the professional and scientific potential of students and teachers in technical higher education institutions. From this point of view, as a summarizing exercise of the electromagnetism physics section of the general physics course, it is desirable to conduct controversial, non-auditory exercises such as a scientific analytical seminar exercise or a conference exercise on the topic "Electromagnetism and its divisions" is appropriate. This topic can be studied as a course work, independent work, bachelor's thesis or master's thesis. By summarizing the main characteristics of the fundamental effects in nature and repeating the comparative analysis, taking an analytical look at the general physics departments from the above point of view, by developing the potential and general competence of future physics teachers, the effectiveness of education will be increased to a high level. serves to raise.

² Announcement about Eshmirzaeva Matluba Abdishukurovna's PhD thesis defense. "Formation of professional competence of students on the basis of personalized education (in the example of the department of electromagnetism)". www.oak.uz

³ Tursunmetov Komiljon Akhmedovich, Kholboev Yunusali Hassan son, Turgunboev Farhod Yusupjanovich.

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