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METHODOLOGY OF TEACHING EXPERIMENTAL WORK, ORGANIZATION OF INDEPENDENT WORK IN TECHNICAL HIGHER EDUCATION INSTITUTIONS

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Abstract : Experimental work, improvement of methods of organizing independent work is organized on the basis of the system of indicators related to the quality of teaching, the State educational standard of the science of electrical machines and the qualification requirements and educational programs of information and communication technologies and. Our goal is to provide students with advanced training based on innovative pedagogical technologies.
Key words: Synchronous machines, rotor structural structure, constant rotation frequency, magnetizing current, turbogenerators, automatic winding devices, reactive power.

(B.Kh. Shaymatov, I.I. Khafizov, M.B. Kholmurodov, T.A. Sattorov "Electric machines" science textbook. Bukhara: BuxMTI, 2019 p. 673.) These types of training are of great importance in the process of teaching the science of electric machines. Therefore, in the teaching of electric machines, along with providing students with theoretical knowledge, it is important to organize and carry out experimental work, demonstration experiments, independent education to strengthen, deepen, expand and connect this knowledge with practice. components. In the course of the research, it was found that there are some problems in teaching the science of electric machines in a practical way. In particular, in some cases, higher education institutions lack all educational and experimental equipment in the field of electric machines. In such conditions, it is necessary to organize and conduct training in virtual form. This shows that it is necessary to carry out separate research works.

Control works.

Control work in the science of electrical machines in higher education institutions is related to the evaluation of students' knowledge of theoretical and practical learning of educational material (Table 1). In assessment, Benjamin Bloom (1913-1999), a famous American psychologist and pedagogue, Benjamin Bloom, founded the system of questions and tasks-the taxonomy of educational goals based on the levels of cognitive activity is quite widespread in the world of modern education. The taxonomy of learning objectives is categorized or systematized by sequential placement of concrete actions, content objects, which indicate a certain level of student mastery, and become more complex on the basis of natural and interdependence. Taxonomy is a theory of classification and systematization of complex structured areas of existence.

Stages of Bloom's Taxonomy;
Table 1

№	Stages of Bloom's Taxonomy	Explanation
1	Knowing	The theory of knowledge summarizes the methods used in modern

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		science (experiment, modeling, analysis, synthesis, etc.) and appears as its philosophical-methodological basis. In the process of learning, experience and practice are of great importance. Here, practice (practice) is understood in a broad sense, and it means human influence on society, changes in natural phenomena, creation of new things, necessary conditions for society's existence.
2	Understanding	and when he has the level of thinking, the student understands facts, rules, drawings, tables, can reconstruct them, change them (from words to numbers or images), and can roughly describe the future consequences based on the available information.
3	Application	A student of his level of thinking can use the knowledge he has acquired not only in traditional, but also in non-traditional situations and apply them correctly based on a certain model, formula, instruction.
4	Analyze	At the level of thinking, the student can separate the parts of the whole and their parts, see errors based on logical thinking, distinguish between facts and consequences, evaluate the importance of information.
5	Sintez	At the level of generalization, the student performs creative work, plans an experiment, uses knowledge from several areas. On the basis of some materials, it creates the image and appearance of the whole. This stage requires a creative activity that emphasizes the creation of a new table from the relevant results.
6	Evaluation	This category requires the achievement of educational results in all the above-mentioned categories and evaluation judgments based on clearly defined criteria. Evaluates on the basis of internal and external criteria, the student can distinguish criteria, observe them, see the variety of criteria, evaluate the compatibility of conclusions with available information, distinguish between facts and evaluative opinion.

Independent work. Independent work of students can be individual, pair or group. In the process of independent work, a mutual "project" is presented among group students, and students are given options according to the magazine number. The student defends the finished project through a slide.

(Muslimov N.A. The theoretical and methodological foundations of the professional formation of the teacher of vocational education. Ped. science. doctoral diss. - Tashkent. - 2007.) appears to be in formation. These are: the results of activities in terms of technical and technological knowledge, professional flexibility, competence and skills in performing technological processes, organization of independent work and other processes. The principle of instruction is reflected in the demonstration.

The Republic of Uzbekistan is building a legal state and an open civil society that ensures the spiritual renewal of the higher education system, the formation of a social, scientific market economy, and joining the world community.

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It was considered to be an urgent issue to achieve a technological approach to the teaching of the science of electrical machines in technical higher education institutions, to prepare an electronic educational module and electronic textbooks based on information technologies, applied animation programs.

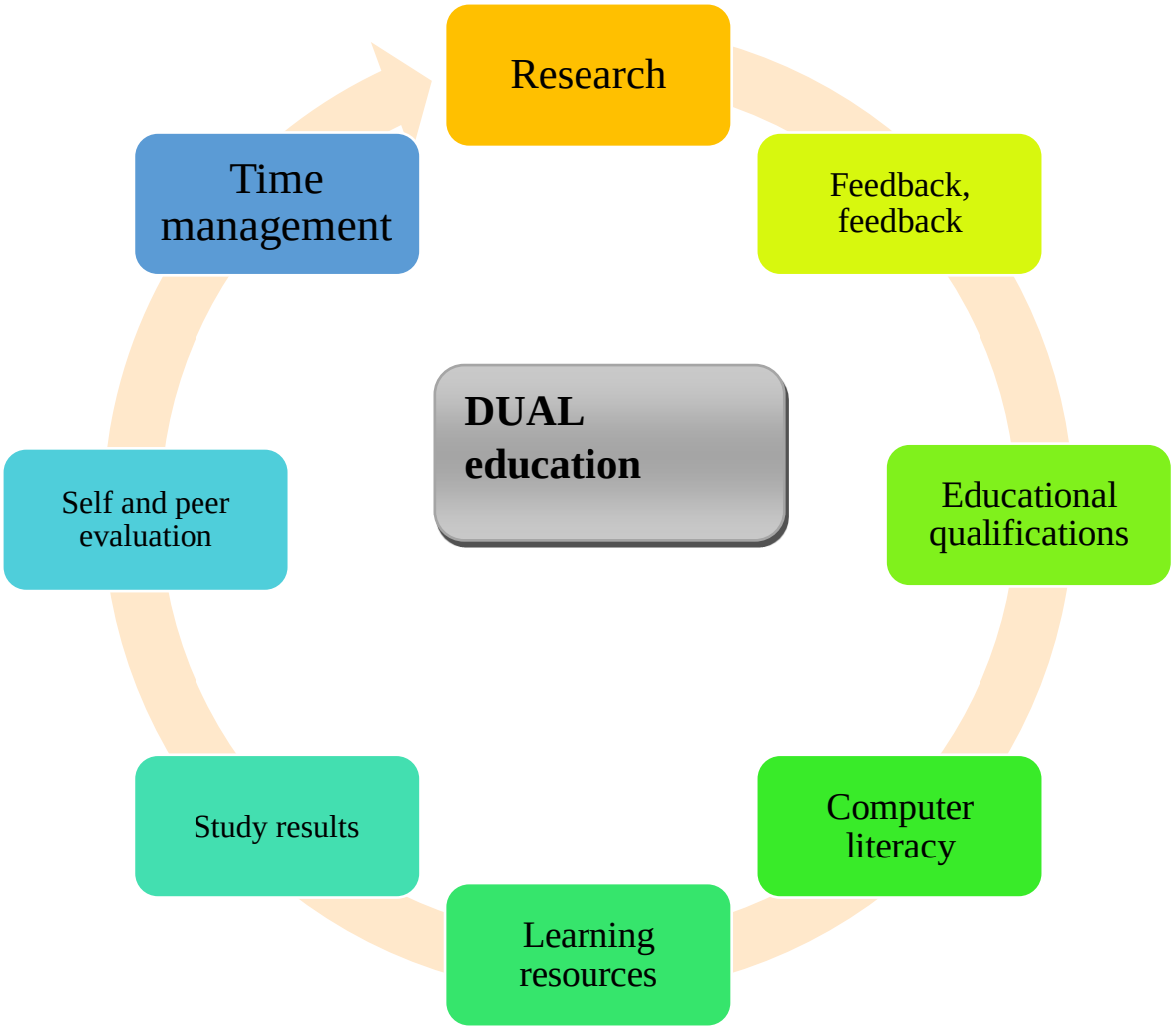

Figure 1. Independent study skills

In Figure 1, the DUAL educational system is one of the important stages in the teaching of the science of electrical machines in technical higher education institutions. In this, the stages of acquiring solid knowledge by increasing the experience of the students at the production enterprise at the same time are shown.

Development of integrated information-methodological support that combines pedagogical and technical knowledge of teaching electrical engineering. It has been determined that there is a need to develop lessons, case assignments, experimental exercises, and create didactic and methodical manuals for the module on the science of electrical machines.

Among the possibilities of information technologies in the higher education system, 60710700 - Electrical engineering, electrical mechanics and electrical technologies; improvement of all science programs in the field of energy (by networks), introduction of the latest achievements of

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science, focusing the main goal of the programs on the priority directions of the development of our country, based on this content, addition to the hours of the science block in the curricula and changes have been made.

We believe that there is a need to develop and put into practice a methodology that serves the use of information and communication technology and innovative technologies in the teaching of electrical machines, and to pay attention to the following issues that serve to improve the processes of teaching electrical machines:

based on the generalization and development of the positive results achieved, an information-educational environment for teaching electrical engineering was created.

The methodical support for the teaching of electric machines in technical higher education institutions has been created, which makes it possible to implement an innovative educational environment.

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