

**IMPROVING THE METHODOLOGY OF DEVELOPING THE PRACTICAL
COMPETENCES OF STUDENTS IN THE SCIENCE OF ELECTRICAL ENGINEERING**

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Abstract: Development of practical skills in electrical engineering is a key aspect of training engineers. However, traditional teaching methods often do not allow students to fully master complex electrical engineering systems. In our article, we will consider practical competences related to electrical engineering and methods for their development.

Key words: Europe, dual system, Vocational schools, Case study.

Enter

The problem of higher education is the gap between the theory students receive and the practical skills necessary for successful professional activity. Therefore, the modern requirements imposed by employers on the future specialist require the need to change the goals (the content and functions of vocational education). [1]

To solve these problems, the dual education system, which is widely used in European countries, can be used. This system combines theoretical and practical training in the educational process. The main substantive concept of the dual system is based on strengthening the practical direction in vocational education. This is done in the training of specialists by combining educational and production processes, which significantly increases the possibility of professional mobility of graduates of educational institutions[2]

The main part

In order for there to be growth in education, the integration of science, technology and technology, which has become a factor in the development of natural science, technological culture and the transformative activity of mankind, should be fully reflected in the content and structure of professional education. Creation of "true multi-level and continuity of education" taking into account advanced traditions of local education, "optimization of teaching methods with active use of open and distance learning technologies", "deepening of education " is necessary to implement. Integration of vocational schools and interdisciplinary programs by combining them with advanced high technologies. During the years of working in primary and secondary vocational education institutions in the training of workers, electrical technicians, masters of vocational education, as well as in the development and implementation of educational programs, model curricula and general technical and analysis of the content of special subjects. We consider the following features of the increase in the level of complexity for students receiving continuous education in higher educational institutions:

- in the content of electrical engineering sciences, it is necessary to take into account the multi-component structure and the variety of studied material and ideal objects;
- it is necessary to connect a large amount of educational material with the formation of skills to apply it in various educational and professional conditions;
- implementation of organic combination of factual, practical and theoretical materials;

- understanding of a large amount of educational material through laboratory (experimental) research and practical study of quantitative and qualitative relationships and properties;
- it is necessary to immediately adapt the content of the educational material to the developing technique and technology;
- taking into account the connection with production practices in various technological objects and industries (in terms of content, but not always in terms of study time);
- it is necessary to combine professional electrical engineering and pedagogical knowledge and skills in educating students.

Integration of theory and practice:

- Lab work: Create more complex and realistic lab work that simulates real production conditions.
- Project activity: Stimulation of students' projects of development and implementation of their own electronic devices.
- Modeling: Using software to model electronic circuits and systems.

Use of modern technologies:

- Virtual Reality (VR): Creating virtual labs where students can safely experiment with dangerous electrical devices.
- Augmented reality (AR): Using AR applications to visualize the internal processes of electronic devices.
- Internet of Things (IoT): Development of IoT-related projects to strengthen knowledge about sensors, actuators and network protocols.

Individual approach:

- Online platforms: providing students with access to online courses and materials that allow them to learn materials at a comfortable pace.
- Adaptive learning system: the use of algorithms that automatically adapt the complexity of tasks to the level of knowledge of each student.

Cooperation with industry:

- Production practices: organization of production practices in electrical engineering enterprises to gain real work experience.
- Expert Lectures: Invite industry experts to deliver guest lectures and workshops.[3]

Methodology and results

Systematic development of educational technology to increase the knowledge and professional competence of young specialists is one of the urgent pedagogical issues. In order to increase the effectiveness of classroom and independent teaching methods in the educational process, a number of teaching methods have been created by foreign universities, including "Syllabus", "Case study", "FSMU", "Assessment", "Insert", "Concepts". analysis", "Venn Diagram", "Bliss-game", "Briefing" and "Portfolio" styles.

Using the "Case-study" method in the teaching of electrical engineering subjects, in particular "General electrical engineering", develops students' independent learning and thinking skills. But it will not be possible to use this method for all topics, because it is necessary to find a problem with several solutions for each topic and to ensure that students have enough knowledge to solve this problem. Therefore, it is appropriate to use the "Keystady" method in practical training after providing theoretical knowledge on the subject in lectures. O.U. developed by, from the subject of "General electrical engineering", conducted on the basis of the "Case-study" method, the lesson plan of the practical training on the topic "Three-phase electrical circuits" is presented.[4]

Summary

If we take into account that only theoretical concepts are formed in the educational process and only 15 percent of the traditional lesson system is mastered, modern methods such as case studies help to increase attention to the lesson and increase the mastery rate. At the same time, insufficient practical skills and low independent thinking skills can be improved with the help of modern methods.

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