

## Teaching of Specialized Subjects in the Energy Field with the Support of ICT

Norbutayev Masudjon Abdurasulovich

Fergana polytechnic institute

**Annotation:** In this article, recommendations on the application of the act in the teaching of specialized sciences in the field of energy are given, and the important aspects of conducting using extinguishing protective equipment in practical and laboratory exercises are studied.

**Keywords:** independent education, professional training, Extinguisher protective equipment, ICT, Macromedia Flash, animation effects.

In our country, special attention is currently being paid to education and upbringing of young people. Education has always been the basis of society's development. Because a person is at the center of all relationships and connections in society. The revolution in science, technology and information has turned man and his scientific and educational potential into a decisive factor of social and economic development.

The process of qualitative improvement of economic growth factors is typical for the current stage of society's development. Application of the advanced results of scientific and technical development, intensification of production, along with the use of high-efficiency technical technologies, and most importantly, training of highly qualified specialists is one of the important directions in this regard.

The problems of ensuring sustainable economic growth, taking a worthy place in the international division of labor, and ensuring the competitiveness of the national economy largely depend on the knowledge, skills, and ability of the workforce to work according to the situation. In order to achieve the great goals that we have to achieve in the future, first of all, we need to train highly qualified specialists who meet the requirements of the time.

"No matter what task we set in front of us, no matter what problem we need to solve, in the end it all boils down to personnel. It can be said without exaggeration that our future, the future of our country depends on who will replace us, or in other words, what personnel will be trained."

At the same time, due to the widespread introduction of modern information-communication and pedagogical technologies, electronic textbooks and multimedia tools into the educational process, the quality of education in the country's schools, vocational technical schools and lyceums, and higher educational institutions should be fundamentally improved, educational institutions special attention is being paid to strengthening the educational-laboratory base with the most modern educational and laboratory equipment, computer equipment, and also to the formation of an effective system of material and moral stimulation of the hard work of teachers and trainers.

To date, significant positive progress has been made in computerization, implementation of information technologies in the educational process. In particular, the fact that the quality of education is fundamentally improving is being tested in practice.

By introducing information technologies:

- high-quality, demonstrative and understandable education is being achieved;
- opportunities are created for students' independent learning, and on this basis, quality indicators of knowledge increase;
- less time is spent on the training sessions and a large amount of information is obtained;
- conditions are being created for students to use electronic lectures;
- it is possible to conduct classes based on new pedagogical technologies;
- students or professors - teachers, employees get new information for themselves, or long-term high-quality use of the obtained database.
- In this case, the need leads to the development of different motivational levels of the student's professional formation in the process of independent education.

Especially, it is more difficult to directly observe and visualize some of the events that happen in the process of conducting lectures and experimental work from students studying in the technical direction of higher educational institutions. Therefore, these phenomena are usually mastered through abstract thinking. As an example, it is not always possible to experiment on the basis of real reality for students studying in the field of energy, from the point of view of technical safety in the process of studying the topic of protective shutdown devices installed in residential apartments and houses in practical and laboratory training. can cause complications.

The main function of the circuit breaker protection equipment is to interrupt the current when the electric current flows to the ground. Residual current devices protect against electric shock, especially when there is no possibility of grounding. Circuit breaker protection equipment is capable of working in single-phase and three-phase networks with an alternating current of 220 and 380 V. The device is packed in a box made of non-flammable PVC materials and is capable of passing currents of different sizes. It is important to use ICT to be able to clearly and understandably deliver the functions and principles of operation of such devices to students.

We offer a way to use Macromedia Flash, the most popular animation program today, for rendering in the form of animation. The essence of the work is as follows. First, the Macromedia Flash program is launched and an image of the switch is drawn in its working window, using the program's working tools. Each element to be moved in the process of drawing its images must be drawn on a separate layer.

After the image of the circuit breaker protective equipment is drawn separately, they are given animated effects. To display in animated view, press Ctrl+Enter on the keyboard. As a result, the principle of operation of the device when a loss occurs in the network (load) is shown in motion (Fig. 1,2).

In short, creation of virtualization of experimental work in many specialized disciplines is currently being carried out rapidly. This work, which is intended to demonstrate the principle of operation of the recommended circuit-breaker protection equipment, is of practical importance not only for students of technical universities, but also for students of secondary special vocational colleges and high school students, as well as manufacturing enterprises and electrical It is also useful for network workers.

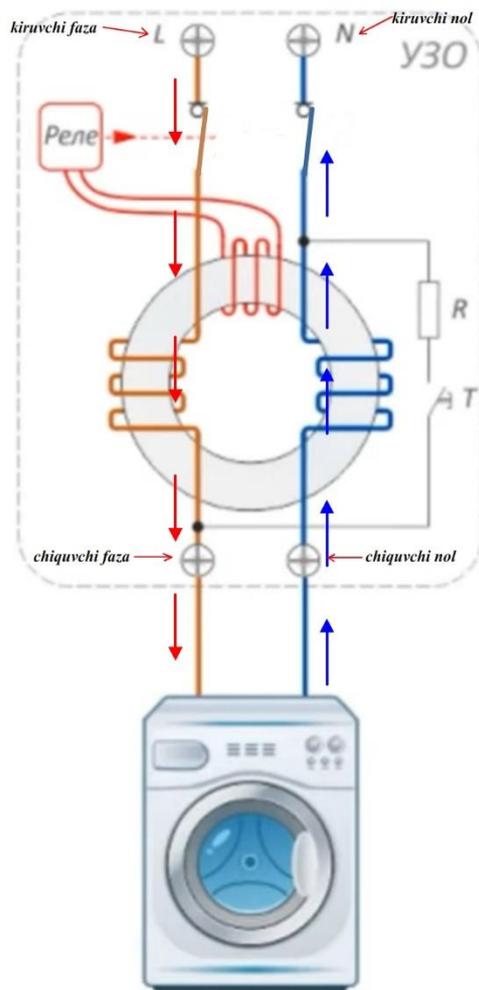


Figure 1. The principle of operation of the extinguishing protection equipment in the normal state

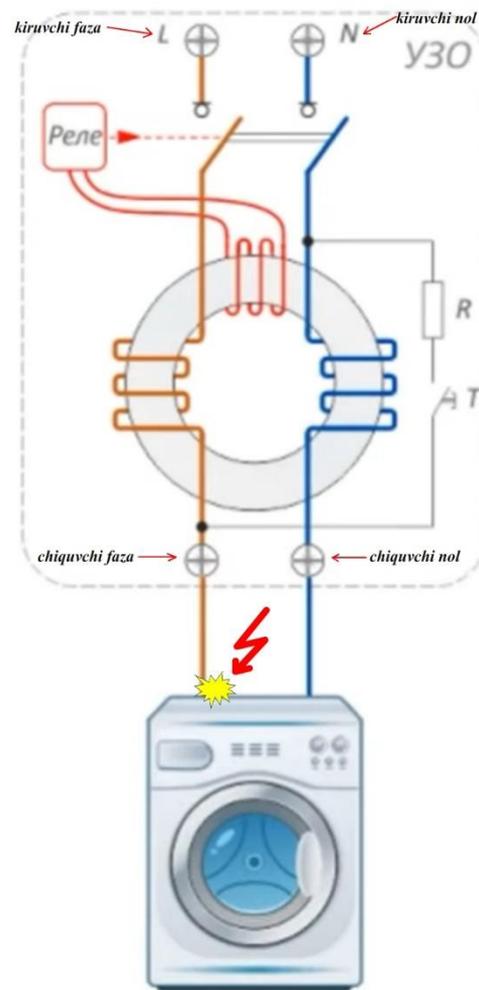


Figure 2. the principle of operation of the device in the event of a load loss

### References:

1. Karimov I. A. Barkamol avlod orzusi.– T.: «SHarq», 1998, 83-bet.
2. Kasimakhunova, A. M., Zokirov, S. I., & Norbutaev, M. A. (2019). Development and Study of a New Model of Photothermogenerator of a Selective Radiation with a Removable Slit. Development, 6(4).
3. Kasimakhunova, A. M., Olimov, S. A., Mamadalieva, L. K., Norbutaev, M., Nazirjanova, S. S., & Laraib, S. R. (2019). Photo Thermal Generator of Selective Radiation Structural and Energetic Features. Journal of Applied Mathematics and Physics, 7(06), 1263.
4. Kasimaxunova, A. M., Norbutaev, M., & Baratova, M. (2021). Thermoelectric generator for rural conditions. Scientific progress, 2(6), 302-308.
5. Abduqaxxorovich, O. S., Mamasadikovna, K. A., Kamildjanovna, M. L., Roziyaxon, N., Og'Li, Z. S. I., & Abdurasulovich, N. M. (2018). Development and research of heterostructures with an internal thin layer based on p-type silicon. European science review, (9-10-1), 183-185.

6. Зокиров, С. И. У., & Норбутаев, М. А. (2021). СОЛНЕЧНЫЙ ТРЕКЕР ДЛЯ ФОТОТЕРМОГЕНЕРАТОРА СЕЛЕКТИВНОГО ИЗЛУЧЕНИЯ. *Universum: технические науки*, (4-5 (85)), 9-13.
7. Abdurasulovich, N. M. (2022). О ‘ZBEKISTONDA TERMOELEKTRIK GENERATORLARDAN FOYDALANISH ISTIQBOLLARI. SO ‘NGI ILMIY TADQIQOTLAR NAZARIYASI, 1(1), 269-273.
8. Norbutaev, M. A. (2022). Create Computer Learning Games Taking Into Account the Psychophysiological Characteristics of the User. *International Journal of Development and Public Policy*, 2(6), 113-116.
9. Kamiljanovna, M. L., & Gofurovich, T. A. (2021). Technology for Manufacturing Working Substances for Thermoelements Branches and Determination of their Thermoelectric Characteristics. *Middle European Scientific Bulletin*, 19, 365-370.
10. Каримов, Ж. Х. (2021). ПРОЦЕДУРЫ ОПТИМИЗАЦИИ ГЛОБАЛЬНЫХ ЦЕЛЕЙ СИСТЕМЫ УПРАВЛЕНИЯ МНОГОСТАДИЙНЫМИ ПРОЦЕССАМИ. *Universum: технические науки*, (11-1 (92)), 48-52.
11. Mamadalieva, L. K., & Minamatov, Y. E. (2021). High Efficiency of a Photoelectric Converter in a Combined Design with a Thermoelectric Converter. *Middle European Scientific Bulletin*, 19, 178-186.
12. Kamiljanovna, M. L. (2021). Analysis of the Results of the Study of the Thermoelectric Part of the Source Sensor. *Middle European Scientific Bulletin*, 19, 191-196.
13. Каримов, Ж. Х., & Фозилов, И. Р. (2020). Управление многостадийными процессами путём оптимизации глобальных целей системы. *Universum: технические науки*, (3-1 (72)), 16-20.
14. Xolmatov, A. A., Karimov, J. X., & Xayitov, A. M. (2021). Effect of crystallizer catalyst on properties of glass-crystalline materials. *EPR International Journal of Research and Development (IJRD)*, 273-275.
15. Abdullaevich, H. E., & Karimov, J. X. (2022). Principles of Development of the Modeling Process. *Texas Journal of Multidisciplinary Studies*, 7, 391-393.
16. Khasanboyevich, K. J., & Ugli, Z. S. I. (2022). Software Technologies for Research and Development of Linguistic Models. *American Journal of Social and Humanitarian Research*, 3(5), 314-320.
17. G‘ofurovich, T. X. A., & Esonali o‘g‘li, M. Y. (2022). Computer Using Dynamic System Modelling Environments. *Journal of Ethics and Diversity in International Communication*, 2(2), 9-13.
18. Avazjon o‘g‘li, V. D., & Esonali o‘g‘li, M. Y. (2022). Prospects for the Development of the 3D Modeling Process. *Texas Journal of Engineering and Technology*, 7, 78-79.
19. Komiljonovna, M. L., & Esonali o‘g‘li, M. Y. (2022). Adjuster Synthesizing for the Heat Process with Matlab. *Texas Journal of Engineering and Technology*, 7, 63-66.
20. Avazjon o‘g‘li, V. D., & Esonali o‘g‘li, M. Y. (2022). Use and Importance of Three-Dimensional Images in Fields. *Journal of Ethics and Diversity in International Communication*, 2(2), 1-4.

21. Minamatov, Y. E. O. G. L., & Nasirdinova, M. H. Q. (2022). APPLICATION OF ICT IN EDUCATION AND TEACHING TECHNOLOGIES. *Scientific progress*, 3(4), 738-740.
22. Minamatov, Y. E. U. (2021). APPLICATION OF MODULAR TEACHING TECHNOLOGY IN TECHNOLOGY. *Scientific progress*, 2(8), 911-913.
23. Sobirov, M. (2022). АХБОРОТ КОМПЕТЕНТЛИЛИГИНИ ШАКЛЛАНТИРИШНИНГ ПЕДАГОГИК ШАРТ-ШАРОИТЛАРИ. *Science and innovation*, 1(B8), 523-526.
24. Горовик, А. А., & Халилов, З. Ш. (2021). Концепции и задачи разработки системы электронного обучения. *Universum: технические науки*, (1-1), 15-17.
25. Khasanboevich, K. J. . (2023). Analysis of Information Security Issues in Electronic Document Circulation Systems. *Journal of Ethics and Diversity in International Communication*, 3(2), 21–25. Retrieved from <https://openaccessjournals.eu/index.php/jedic/article/view/1829>
26. Khasanboevich, K. J. . (2023). Innovative Technologies in Improving Education. *Journal of Ethics and Diversity in International Communication*, 3(2), 26–28. Retrieved from <https://openaccessjournals.eu/index.php/jedic/article/view/1830>