

**A METHODOLOGICAL MODEL OF IMPROVING THE TEACHING
METHODOLOGY OF "ENGINEERING GRAPHICS" IN TECHNICAL HIGHER
EDUCATION INSTITUTIONS ON THE BASIS OF INNOVATIVE APPROACH**

Khakimova Malika

Assistant, Tashkent Institute of Chemical Technology

Abstract: The methodical model of improving the teaching methodology of "Engineering graphics" in technical higher education institutions based on an innovative approach begins with the organization of methodical activities.

The article describes the analysis of the developed model of teaching "Engineering Graphics", the rules for choosing relevant professional tasks.

Keywords: Summary, level, function, activity, definition, content, component, design.

Engineering activities are multidisciplinary. According to Yu. G. Fokin, the professional qualities of an engineer include attention to high technologies, unconventional solutions, the ability to effectively use information tools, professional knowledge and activity in learning new things. In addition, an engineer should not only be able to solve production, use and management issues, but also have special qualities such as a researcher and designer [4]. Therefore, the future specialist should be ready to independently make non-traditional decisions, perform actions whose algorithm is not known, that is, independent professional activity. Therefore, it is necessary to ensure the formation of independence in the educational process as the basis of the new "ideal" of the engineer.

Teaching "Engineering graphics" in higher educational institutions M.Mamarajabov, S.Tursunov [1] and Sh.A.Nazirov, F.M.Nuraliev, B.Z.Toraev [2], issues of innovative approach in education, scientists of our country D.Khimmataliev [5], Q.Olimov [3], Sh.Qurbanov [6] and others have researched.

The methodical model of improving the teaching methodology of "Engineering graphics" in technical higher education institutions based on an innovative approach begins with the organization of methodical activities.

Educational (methodical) activity is one of the complex and important components of any teacher's activity, from the primary school teacher to the university teacher. The activity content of any teacher is different, but his algorithm, as well as the conditions for effective implementation, are practically the same. Such conditions can include the following (we do not take into account external, organizational and material conditions, we are talking only about didactic conditions):

- the educational process must be prepared by the teacher in a certain way, taking into account all the factors that affect teaching;
- it is necessary to properly organize and implement the educational process;
- it is necessary to analyze the educational process that has already been carried out, take into account errors and shortcomings, and correct it.

Based on these conditions, we can form methodological activity functions that ensure the implementation of the specified conditions:

- 1) to identify and (or) analyze the initial data, factors and features of the educational process, to foresee its model;
- 2) organization and management of effective educational activities (direct implementation and feedback);

3) assessment of the level of compliance with the purpose of correcting or completely changing the implemented model of the educational process.

Naturally, these functions are performed within the framework of a separate component of methodical activity studied by different researchers, but there are differences in the interpretation of different terminology and content according to their definition. These components include (according to the above functions): design (didactic design), technological (organizational) and analytical content.

It is important to rely on the rules of choosing the appropriate professional tasks. These rules include:

- each type of professional activity can be autonomous if necessary, can be mastered separately by obtaining the appropriate certificate;
- the readiness of a graduate of a vocational education institution to perform the main aspects of professional activity should be equal to the minimum professional competence of a skilled worker or specialist. For example, if we talk about the main types of teacher activity, it can include:

- 1) training in general educational programs;
- 2) perform class management;
- 3) scientific-methodological support of the educational process and its constant improvement.

Each activity shows the need to choose the necessary and sufficient professional competences, it ensures the acquisition of professional tasks. Thus, the methodological model of improving the teaching methodology of "Engineering graphics" in technical higher education institutions based on an innovative approach includes the following types of activities:

- diagnose the level of education, motivation, knowledge and abilities of students;
- formation of educational content in accordance with the capabilities and uniqueness of the community of special and special education students, general education standards, and the requirements of educational programs ;
- designing the educational process into general and separate classes in accordance with the requirements of educational program standards;
- to monitor the progress of students (the quality of educational results) and conduct monitoring in order to make corrections to the content of education and its organization.

Any scientific model is an abstract expression of the essence of the phenomenon being studied. Modeling is based on the analogy theory, and the model works as an approximate analogue of this phenomenon. The logic of building a methodical model includes:

- identifying and justifying the laws of learning, reflecting its specific connections and dependencies;
- the model of the educational system describes the dynamic aspects of its operation;
- in the generalized model, the structural and technological features of the system should be clearly interrelated.

In order to develop a methodological model for improving the teaching methodology of "Engineering graphics" in technical higher education institutions based on an innovative approach, the following should be determined:

- strategic level objectives,
- development of the "tree of operational objectives",
- select the block of data to be mastered,
- development of an introductory teaching model (ideal model).

The construction of a methodical model for improving the teaching methodology of "Engineering graphics" in technical higher education institutions based on an innovative approach implies the development of the basics of graphic culture in the above-mentioned way.

When organizing and conducting any activity, it is necessary to conduct it purposefully, to organize it in such a way as to achieve the result in the most optimal way. As described above, the strategic goal of studying in technical higher education institutions is the comprehensive development of a person, education at the operational level, implementation of development goals and formation of activity motives.

When analyzing information materials for teaching engineering graphics, we directly refer to the operations of the activity, which requires the development of operational goals. In the development of a methodical model for improving the teaching methodology of "Engineering graphics" in technical higher education institutions based on an innovative approach, the time for teaching graphic subjects was determined, and the forms of organizing classes that could be used for teaching were determined.

The analysis of the developed model of teaching engineering graphics allows us to make the following conclusions. In the first semester, qualities such as patriotism, conscientious work for the benefit of society are formed, which correspond to the goals of study in the first years: mastering the basics of knowledge, forming a student community, etc. Setting these objectives is consistent with the learning objectives of engineering graphics classes this term.

During this period, educational goals are mainly set at the second and third levels of mastering. In the second semester, the formation of such qualities as conscientious performance of public duty, humanitarianism, and freedom is carried out. It fully corresponds to the completion of tasks at the third level of mastery and allows for the purposeful formation of readiness for independent educational activities.

References:

1. Мамаражабов М., Турсунов С. Компьютер графикаси ва веб-дизайн. Дарслик. Т.: "Чўлпон", 2013.
2. Назиров Ш.А., Нуралиев Ф.М., Тўраев Б.З. Компьютер графикаси ва дизайн Ўқув қўлланма Т.: "Фан ва технология", 2015.
3. Олимов Қ.Т. Махсус фанлардан ўқув адабиётларнинг янги авлодини яратишнинг назарий-услубий асослари: Дис. ... пед.фан.докт. – Т.: 2005. – 286 б.
4. Фокин Ю.Г. Преподавание и воспитание в высшей школе: Учеб.пособие для студ. высш. учеб. заведений. - М.: Издательский центр «Академия», 2002. - 224 с.
5. Химматалиев Д.О. Касбий фаолиятга тайёргарликни диагностика қилишда педагогик ва техник билимлар интеграцияси: Педагогика фанлари бўйича докторлик (DSc) дисс. автореф. – Т.: 2018. - 70 б.
6. Курбонов Ш., Сейтхалилов Э. Таълим сифатини бошқариш. – Т.: "Турон-Иқбол", 2006.-592 б.
7. Zokirova, D. N. (2021). Goals And Objectives Of Organizing Independent Work Of Students. *The American Journal of Social Science and Education Innovations*, 3(01), 179-182.
8. Зокирова, Д. Н. (2021). Integration Of Professional And Educational Disciplines Into Training Of Self-Learning Motivated Students. *Современное образование (Узбекистан)*, (6), 24-28.
9. Hakimov J.O. Ta'limda axborot texnologiyalari. Darslik. – Toshkent, "Shamsuddinxon Boboxonov" NMIU, 2022. – 274 b.

10. Nematillaevna, Z. D. (2021). Problems in providing independent learning education and ways to prevent them. *Academicia: An International Multidisciplinary Research Journal*, 11(1), 1431-1436.
11. Khakimov J.O. Documenting procedures for implementing the process of project teachers to computer projects. *International Journal of Advanced Science and Technology*. 019, 28(20), pp. 881–889.
12. Otamirzaev, O. U., & Zokirova, D. N. (2019). PROBLEMS ARISING WHEN APPLYING THE “BOOMERANG” METHOD IN THE COURSE OF TRAINING AND METHODS FOR THEIR ELIMINATION. *Scientific Bulletin of Namangan State University*, 1(11), 270-274.
13. Usarov J.E., Eshnaev N.J., Khakimov J.O., Saidova D.I., Inoyatov I.Sh., Shodiev N.S. The social significance of creating a mechanism of psychological study of the children's spirit in crisis families. *NeuroQuantology. An Interdisciplinary Journal of Neuroscience and Quantum Physics*. December 2022. Volume 20, Issue 16, Page 4614-4622.
14. Зокирова, Д. Н. (2021). Талабаларга Мустақил Ўрганишга Ундовчи Таълим Беришда Касбий Ва Умумтаълим Фанларининг Интеграцияси. *Современное образование (Узбекистан)*, (6 (103)), 24-28.
15. Khimmataliev D.O., Kiyamov N.S., Chudakova V.P., Khashimova M.K., Khakimov J.O., Berdialieva G.A. Modern view of the teacher on independent activity of students. *Journal of positive school psychology*. 2022, Vol. 6, No. 3, Page 1647–1657.
16. Sayfullayeva, D. A., Tosheva, N. M., Nematova, L. H., Zokirova, D. N., & Inoyatov, I. S. (2021). Methodology of using innovative technologies in technical institutions. *Annals of the Romanian Society for Cell Biology*, 7505-7522.
17. Отамирзаев, О. У., Зокирова, Д. Н., & Вахобова, С. К. (2016). Методические рекомендации по организации самостоятельной работы студентов. *International scientific journal*, (4 (1)), 26-28.
18. Usubovich, O. O., & Nematillaevna, Z. D. (2022). Problems Arising From the Use of the Case-Study Method and Methods of Their Prevention. *CENTRAL ASIAN JOURNAL OF SOCIAL SCIENCES AND HISTORY*, 3(6), 5-10.
19. Химматалиев, Д. О., & Зокирова, Д. Н. (2022). НАЗАРИЙ ЭЛЕКТРОТЕХНИКА ФАНИНИ ТАЪЛИМ ТЕХНОЛОГИЯЛАРИ ТАРКИБИ АСОСИДА РЕЖАЛАШТИРИШ ВА УЛАРДАН ФОЙДАЛАНИШ. *Евразийский журнал академических исследований*, 2(3), 630-638.
20. Otamirzaev, O. U., & Zokirova, D. N. M. (2017). Mustaqil o'rganishga undovchi ta'lim berish usullari va ularning samaradorligi. *Міжнародний науковий журнал Інтернаука*, (1 (1)), 50-52.
21. Zokirova, D. N. M., Qurbonova, F. Q., & Nishonov, M. M. O. G. L. (2022). NAZARIY ELEKTROTEKHNIKA FANI DARS MASHG 'ULOTLARIDA INNOVATSION TARBIYA BERISHNING INTERFAOL USULLARIDAN FOYDALANISH. *Oriental renaissance: Innovative, educational, natural and social sciences*, 2(3), 371-377.
22. Usubovich, O. O., & Ne'matillaevna, Z. D. (2022). Methodology of using connecting elements of science in the organization of independent work of the science of hydroelectric power stations.
23. Отамирзаев, О. У., & Зокирова, Д. Н. (2014). Мустақил фикрлашларни шакллантиришга йўналтирилган дарс ишланмаси.
24. Отамирзаев, О. У., & Зокирова, Д. Н. (2019). «Электр ёритиш» фанини ўқитишда «Бумеранг» методидан фойдаланиш. *Современное образование (Узбекистан)*, (3 (76)), 37-41.

25. Usubovich, O. O., & Ne'matillaevna, Z. D. (2022, April). INTERFAOL USULLARDAN FOYDALANIB TALABALARNING MUSTAQIL FIKRLASHLARINI SHAKLLANTIRISH. In *E Conference Zone* (pp. 101-105).
26. Зокирова, Д. Н. (2018). "Электромеханика" фани мисолида аудиторияда ташкил этиладиган мустақил таълим шакллари. *Научное знание современности*, (4), 22-27.
27. Зокирова, Д. Н. (2018). "ЭЛЕКТРОМЕХАНИКА" ФАНИ МИСОЛИДА АУДИТОРИЯДАН ТАШҚАРИДА МУСТАҚИЛ ТАЪЛИМ ОЛИШ ШАКЛЛАРИ. *Научное знание современности*, (5), 78-83.
28. Бекваевич, У. Қ., Отамирзаев, О. У., & Зокирова, Д. Н. (2022). The use of Interactive Methods in the Formation of Independent Thinking of Students and Their Analysis. *Telematique*, 7026-7032.
29. Зокирова, Д. Н. (2023). МУҲАНДИСЛАРНИ КАСБИЙ ИННОВАЦИОН ФАОЛИЯТГА ТАЙЁРЛАШДА МУСТАҚИЛ ТАЪЛИМНИНГ ЎРНИ. *Экономика и социум*, (3-2 (106)), 505-512.
30. Ne'matillaevna, Z. D. (2022). NAZARIY ELEKTROTEXNIKA FANINI O'QITISHDA O'QITISHNING ZAMONAVIY SHAKL VA METODLARIDAN FOYDALANIB TA'LIM SAMARADORLIGIGA ERISHISH. *BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI*, 2(11), 33-36.
31. Nematillaevna, Z. D. (2023). INTEGRATIV YONDASHUV ASOSIDA KASBIY PEDAGOGIK FAOLIYATGA TAYYORLASH TAMOYILLARI. *Science and innovation*, 2(Special Issue 14), 502-509.
32. ЗОКИРОВА, Д. Н., ХУСАИНОВ, Ж. И. Ў., & ЖУМАБОЕВ, Н. Ж. Ў. НАЗАРИЙ ЭЛЕКТРОТЕХНИКА ФАНИНИ ЎҚИТИШДА ЎҚИТИШНИНГ ЗАМОНАВИЙ ШАКЛ ВА МЕТОДЛАРИДАН ФОЙДАЛАНИБ ТАЪЛИМ САМАРАДОРЛИГИГА ЭРИШИШ. *НАУЧНОЕ ЗНАНИЕ СОВРЕМЕННОСТИ Учредители: Индивидуальный предприниматель Кузьмин Сергей Владимирович*, (9), 8-12.