

## KIMYO TEXNOLOGIYA FANLARINI O'QITISHDA ZAMONAVIY PEDAGOGIK TEXNOLOGIYALAR

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**Annotatsiya:** *Kimyoviy texnologiyani o'qitish o'quvchilarning ta'lif sifatiga katta ta'sir ko'rsatadigan o'ziga xos yondashuvni talab qiladi. Ushbu maqolada qo'llanilayotgan metodologiya, o'qituvchilar duch keladigan qiyinchiliklar va ushbu sohada rivojlanish uchun potentsial yo'nalishlar ko'rib chiqiladi. Maqolada uzlucksiz kasbiy rivojlanish va talabalarga eng yaxshi ta'lif berish uchun yangi va ijodiy o'qitish usullarini kiritish muhimligi ta'kidlangan.*

**Kalit so'zlar:** *ta'lif, malaka oshirish, metodika, o'qitish, kimyoviy texnologiya, innovatsiyalar, muammolar, imkoniyatlar.*

### **Kirish**

Kimyoviy texnologiya bo'yicha pedagogik mahoratni o'rgatish o'ziga xos muammolarni keltirib chiqaradi. Asosiy muammolardan biri shundaki, kimyoviy texnologiya murakkab fan bo'lib, asosiy tamoyillarni chuqur tushunishni talab qiladi. Demak, o'qituvchilar nafaqat mavzu bo'yicha mutaxassis bo'lishlari, balki bu bilimlarni o'quvchilarga samarali yetkazish uchun zarur pedagogik mahoratga ham ega bo'lishlari kerak. Pedagogika - bu o'qitish tamoyillari va usullarini o'rganadigan fan, ayniqsa u bolalarga tegishli. Biroq kimyoviy texnologiyada pedagogika barcha yoshdagi o'quvchilarga texnik fanlarni o'qitishni qamrab olganligi sababli kengroq ma'no kasb etadi. Pedagogikaning kimyoviy texnologiyadagi ahamiyatini ortiqcha baholab bo'lmaydi, chunki u o'quvchilarning kasbiy kompetensiyalarini shakllantirish va ularni kelajakdagi pedagogik faoliyatiga tayyorlash uchun zarurdir.

Kimyoviy texnologiya bo'yicha pedagogik mahorat deganda kimyoviy texnologiya sohasidagi texnik bilimlarni samarali o'qitish va etkazish qobiliyati tushuniladi. Bu talabalarga murakkab kimyoviy tamoyillar va texnikalarni tushunishga yordam berish uchun turli xil o'qitish strategiyalari va usullaridan foydalanishni o'z ichiga oladi. Kimyoviy texnologiya bo'yicha pedagogik mahorat sohasidagi yangilik kimyoviy texnologiya o'qituvchilarida samarali pedagogik mahoratni shakllantirish muhimligini e'tirof etishdir. Bu an'anaviy ma'ruzaga asoslangan yondashuvlardan tashqariga chiqadigan yangi va innovatsion o'qitish usullarini o'z ichiga olish zarurligini o'z ichiga oladi. Shuningdek, o'quvchilarga o'z

bilimlarini amaliy sharoitlarda qo'llash imkonini beruvchi amaliy ta'lim tajribalarini o'z ichiga olgan tajriba asosida o'rganishga e'tibor kuchaymoqda.

Bundan tashqari, texnika taraqqiyoti kimyoviy texnologiya o'qituvchilarining pedagogik mahoratini oshirish uchun yangi imkoniyatlar ochdi. Misol uchun, interaktiv raqamli vositalar va simulyatsiyalar o'quvchilarga murakkab kimyoviy hodisalarni yaxshiroq tushunishga yordam beradigan qiziqarli va chuqur o'rganish tajribasini yaratish uchun ishlatalishi mumkin. Bundan tashqari, ma'lumotlar tahlilidan foydalanish o'qituvchilarga o'quvchilar qiyin bo'lishi mumkin bo'lган sohalarni aniqlashga yordam beradi va ta'lim natijalarini yaxshilash uchun maqsadli tadbirlarni amalga oshirishga imkon beradi. Umuman olganda, kimyoviy texnologiya bo'yicha pedagogik mahorat sohasi doimiy ravishda rivojlanib boradi, bu esa talabalarga tez o'zgarib borayotgan ushbu sohada muvaffaqiyatga erishish uchun zarur bo'lган bilim va ko'nikmalarni berish zaruratidan kelib chiqadi. Shunday qilib, kimyoviy texnologiya o'qituvchilari o'z talabalarining eng yaxshi ta'lim olishlarini ta'minlash uchun doimiy kasbiy rivojlanishga va yangi va innovatsion o'qitish yondashuvlarini integratsiyalashga sodiq bo'lishlari kerak.

Islohotning asosiy yo'nalishlaridan biri o'qitishning an'anaviy, ma'ruza uslubidan ko'proq talabaga yo'naltirilgan, interfaol yondashuvga o'tish bo'ldi. Bu o'qitishning yangi usullarini joriy etish va o'qituvchilarni bu usullardan samarali foydalanishga o'rgatish bilan bog'liq. Hukumat, shuningdek, o'qitish va o'qitishni qo'llab-quvvatlash uchun darsliklar va multimedia resurslari kabi yangi o'quv materiallari va resurslarini ishlab chiqishga sarmoya kiritdi.

### **O'rganish sohasi va usullari:**

Islohotning yana bir yo'nalishi – kompetensiyaga asoslangan ta'limni joriy etish bo'lib, u o'quvchilarning mehnat faoliyatida muvaffaqiyat qozonishi uchun zarur bo'lган amaliy ko'nikma va bilimlarni shakllantirishga qaratilgan. Bu mehnat bozori ehtiyojlariga yanada chambarchas mos keladigan yangi o'quv dasturlarini ishlab chiqish, amaliy ish tajribasi va stajirovkalarini ta'lim tizimiga integratsiyalash bilan bog'liq. Hukumat o'qituvchilarni tayyorlash dasturlari sifatini oshirish va mamlakatda malakali o'qituvchilar sonini ko'paytirishga ham harakat qildi. Bu yangi o'qituvchilar malakasini oshirish institutlarini tashkil etish va 21-asr sinfining ehtiyojlariga qaratilgan yangi o'qituvchilar tayyorlash dasturlarini ishlab chiqishni o'z ichiga oldi.

### **Munozara:**

Ushbu tadqiqot natijalari kimyoviy texnologiyani o'qitish metodologiyasida doimiy kasbiy rivojlanish va o'qitishning yangi va innovatsion yondashuvlarini integratsiyalashuvining muhimligini ta'kidlaydi. Kimyoviy texnologiya bo'yicha o'qituvchilar ushbu sohadagi eng so'nggi ishlanmalar va tendentsiyalardan xabardor bo'lishlari va talabalarga eng yaxshi ta'lim berish uchun yangi va innovatsion o'qitish usullarini qo'llashga tayyor bo'lishlari kerak.

### **Xulosa:**

Xulosa qilib aytadigan bo'lsak, kimyoviy texnologiyani o'qitish metodikasi o'quvchilar olgan ta'lif sifati uchun muhim ahamiyatga ega. Kimyoviy texnologiya o'qituvchilari doimiy kasbiy rivojlanishga va talabalarga eng yaxshi ta'lif berish uchun yangi va innovatsion o'qitish yondashuvlarini integratsiyalashga sodiq bo'lishlari kerak. Samarali o'qitish metodikasini ishlab chiqish va qo'llash kimyoviy texnologiya sanoatining uzluksiz o'sishi va muvaffaqiyati uchun muhim ahamiyatga ega.

#### REFERENCES:

1. Nazirjonovna K. Z., Khamidovna D. N. SOURCES, METHODOLOGICAL BASIS OF PEDAGOGICAL TECHNOLOGY AND ITS DIFFERENCE FROM PRIVATE METHODOLOGY //IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI. – 2023. – T. 3. – №. 5. – C. 41-44.
2. Khatamova Z. N. et al. THE NEED FOR THE ORIGIN, EMERGENCE AND FORMATION OF PEDAGOGICAL TECHNOLOGIES //Educational Research in Universal Sciences. – 2023. – T. 2. – №. 4. – C. 414-418.
3. Nazirjonovna K. Z. et al. VERBAL INFLUENCE ON TEACHER'S COMMUNICATIVE ABILITY WITH WORDS //Galaxy International Interdisciplinary Research Journal. – 2023. – T. 11. – №. 4. – C. 859-862.
4. Nazirjonovna K. Z. et al. CHARACTERISTICS OF THE TEACHER PERSONALITY RELATED TO THE EXCHANGE OF OPINIONS //Galaxy International Interdisciplinary Research Journal. – 2023. – T. 11. – №. 4. – C. 690-694.
5. Nazirjonovna X. Z. FROM THE HISTORY OF MONETARY POLICY IN THE FINANCIAL LIFE OF THE KhOKAND KHANATE //STUDIES IN ECONOMICS AND EDUCATION IN THE MODERN WORLD. – 2023. – T. 2. – №. 4.
6. Хатамова, З. (2021). Expenditure of income from taxes and levies in the kokand khanate: [https://doi. org/10.47100/conferences. v1i1. 1230](https://doi.org/10.47100/conferences. v1i1. 1230). In research support center conferences (No. 18.05).
7. Nazirjonovna, K. Z. (2022). SH. VOKHIDOV'S CONTRIBUTION TO THE STUDY OF THE HISTORY OF THE KOKAND KHANATE. Innovative Society: Problems, Analysis and Development Prospects, 139-141.
8. Xatamova, Z. (2021, June). EXPENDITURE OF INCOME FROM TAXES AND LEVIES IN THE KOKAND KHANATE. In Конференции.
9. Хатамова, З. (2023). Из истории денежной политики в финансовой системе Коканского ханства. Актуальные проблемы истории Узбекистана, 1(1), 327–336. извлечено от <https://inlibrary.uz/index.php/history-of-uzbekistan/article/view/16511>

10. Nazirjonovna, K. Z. (2022). Political-Financial Analysis of the Issues of Science of the Kokand Khanate in the Work of Khudoyorkhonzade "Anjum At-Tavorikh". CENTRAL ASIAN JOURNAL OF SOCIAL SCIENCES AND HISTORY, 3(10), 102-111. Retrieved from <https://cajssh.centralasianstudies.org/index.php/CAJSSH/article/view/463>
11. Burkhonov, I. M. (2020). "ZAKAT" HAS ENSURED FAIRNESS AND BALANCE IN SOCIETY. Theoretical & Applied Science, (5), 201-204.
12. Muhiddinovich, B. I. (2020). Negative impact of the tax system on political life-on the example of the history of the Kokand Khanate (1850–1865). ACADEMICIA: An International Multidisciplinary Research Journal, 10(5), 790-795.
13. Burkhonov, I. (2021, June). The importance of the scientific heritage of asomiddin urinboyev in the study of the history of the Kokand khanat. In Конференции.
14. Бурхонов, И. М. (2019). ҚҮҚОН ХОНЛИГИ МАЪМУРИЙ БОШҚАРУВИДА СОЛИҚ ТИЗИМИНИНГ СИЁСИЙ ҲАЁТГА САЛБИЙ ТАЪСИРИ (1850-1865). ВЗГЛЯД В ПРОШЛОЕ, (19).
15. Burkhonov, I. (2021). The importance of the scientific heritage of asomiddin urinboyev in the study of the history of the Kokand khanat: <https://doi.org/10.47100/conferences. v1i1. 1242>. In RESEARCH SUPPORT CENTER CONFERENCES (No. 18.05).
16. Бурханов, И. (2023). Научное наследие Шарафиддина Али Язди в интерпретации Асомиддина Оринбоева. Актуальные проблемы истории Узбекистана, 1(1), 165–171.
17. BURKHONOV, I. FROM THE HISTORY OF THE TRANSLATION OF THE WORK OF ABURAZZAK SAMARKAND" MATLA'I SA'DAYN AND MAJMA'I BAHRAIN. ЭКОНОМИКА, 138-144.
18. Muhiddinovich, B. I. (2022). The Importance of Asomiddin Urinboev's Scientific Research in the Study of the History of the Kokan Khanate. Kresna Social Science and Humanities Research, 3, 175-179.
19. Бурхонов, И. М. (2020). «ЗАКОТ»-ХАЛҚИМИЗ ҲАЁТИДА АДОЛАТ ВА МУТАНОСИБЛИК ОМИЛИ. ВЗГЛЯД В ПРОШЛОЕ, 3(5).
20. Muhiddinovich, B. I. (2022). In the Study of the History of the Kokand Khanate. Eurasian Journal of History, Geography and Economics, 6, 68-71.
21. Burkhanov , I. . (2022). FROM THE HISTORY OF THE USE OF THE SCIENTIFIC HERITAGE OF KOKAND SCIENTISTS ASOMIDDIN URINBOEV. International Bulletin of Medical Sciences and Clinical Research, 2(10), 63–67.
22. Хатамова, З. (2021, August). EXPENDITURE OF INCOME FROM TAXES AND LEVIES IN THE KOKAND KHANATE: <https://doi.org/10.47100/conferences. v1i1. 1230>. In RESEARCH SUPPORT CENTER

CONFERENCES (No. 18.05).

23. Хатамова, З. Н. Особенности налоговой системы Коканского ханства / З. Н. Хатамова. — Текст : непосредственный // Молодой ученый. — 2020. — № 5 (295). — С. 254-256. — URL: <https://moluch.ru/archive/295/66918/>
24. Nazirjonovna, H. Z., & Abdumannobovich, N. M. (2020). Tax system on the territory of kyrgyzstan during the Kokand Khanate. ACADEMICIA: An International Multidisciplinary Research Journal, 10(6), 209-212.
25. Xatamova, Z. (2020). Expenditure of state funds replenished by taxes in the history of the kokand khanate. EPRA International Journal of Research and Development (IJRD), 5(3), 274-277.
26. Хатамова, З. Н. (2020). ҚҰҚОН ХОНЛИГИДА СОЛИҚЛАР ҲИСОБИГА ТҮЛДИРИЛГАН ҲАЗИННИНГ САРФ ЭТИЛИШИГА ОИД МАЪЛУМОТЛАР. ВЗГЛЯД В ПРОШЛОЕ, (SI-1№ 4).
27. Мирзакаримова Г. М. Қ. Муродилов ХТҮ Понятие о бонитировке балла почв и её главное предназначение //Central Asian Research Journal for Interdisciplinary Studies (CARJIS). – 2022. – Т. 2. – №. 1. – С. 223-229.
28. Ganiyev Y. Y., Qosimov L. M., Murodilov K. T. CREATING AGRICULTURAL MAPS USING GEO-INFORMATION SYSTEMS AS AN EXAMPLE OF BANDIKHAN DISTRICT //Finland International Scientific Journal of Education, Social Science & Humanities. – 2023. – Т. 11. – №. 3. – С. 1132-1140.
29. Murodilov K. T., Alisherov S. M. WEB CARTOGRAPHY AT THE CURRENT STAGE OF DEVELOPMENT OF GEOINFORMATION RESOURCES //Galaxy International Interdisciplinary Research Journal. – 2023. – Т. 11. – №. 4. – С. 166-171.
30. Toshmatov U. Q., Murodilov K. T. CREATING MAPS OF AGRICULTURE AND CLUSTERS BY USING GEOINFORMATION SYSTEMS //Innovative Development in Educational Activities. – 2023. – Т. 2. – №. 6. – С. 464-470.
31. Murodilov K. T., Muminov I. I. THEORY OF CREATING CLUSTER MONITORING WEB MAPS USING GEOINFORMATION SYSTEMS //Open Access Repository. – 2023. – Т. 4. – №. 3. – С. 1430-1436.
32. Murodilov K. T., Toshmatov U. Q. CREATING MAPS OF AGRICULTURE AND CLUSTERS BY USING GEOINFORMATION SYSTEMS. Innovative Development in Educational Activities, 2 (6), 464–470. – 2023.
33. O'G'Lи M. H. T. Market transformation for sustainable rural housing //Достижения науки и образования. – 2019. – №. 7 (48). – С. 30-31.
34. Murodilov K. T. et al. USE OF GEO-INFORMATION SYSTEMS FOR MONITORING AND DEVELOPMENT OF THE BASIS OF WEB-MAPS //Galaxy International Interdisciplinary Research Journal. – 2023. – Т. 11. – №. 4. – С. 685-689.

35. Mirzakarimova G. M., Murodilov K. T., Toshmatov U. Q. REMOTE SENSING DATA: INTERNATIONAL EXPERIENCES AND APPLICATIONS //ITALY" ACTUAL PROBLEMS OF SCIENCE AND EDUCATION IN THE FACE OF MODERN CHALLENGES". – 2023. – T. 14. – №. 1.
36. Murodilov K. T. et al. USE OF GEO-INFORMATION SYSTEMS FOR MONITORING AND DEVELOPMENT OF THE BASIS OF WEB-MAPS //Galaxy International Interdisciplinary Research Journal. – 2023. – T. 11. – №. 4. – C. 685-689.
37. ogli Jasurbek N. O., Murodilov K. T. HISTORY OF CREATION OF WEB CARDS AND CURRENT PROSPECTS: PROBLEMS AND SOLUTIONS //Educational Research in Universal Sciences. – 2023. – T. 2. – №. 2. – C. 184-186.
38. Murodilov K. T. et al. IMPROVING THE METHODS OF PROVIDING GEO-INFORMATION FOR THE MONITORING OF TERRITORIES AND DEVELOPING THE BASIS OF WEB-MAPS //Galaxy International Interdisciplinary Research Journal. – 2023. – T. 11. – №. 4. – C. 695-701.
39. Murodilov K. T., Muminov I. I. THEORY OF CREATING CLUSTER MONITORING WEB MAPS USING GEOINFORMATION SYSTEMS //Open Access Repository. – 2023. – T. 4. – №. 3. – C. 1430-1436.
40. ogli Jasurbek N. O., Murodilov K. T. HISTORY OF CREATION OF WEB CARDS AND CURRENT PROSPECTS: PROBLEMS AND SOLUTIONS //Educational Research in Universal Sciences. – 2023. – T. 2. – №. 2. – C. 184-186.
41. qizi Abdullayeva G. V., ugli Murodilov K. T. PROVIDING GEO-INFORMATION FOR THE MONITORING OF THE CLUSTER ACTIVITY OF THE REGIONS AND DEVELOPING THE BASIS OF WEB-MAPS (IN THE CASE OF FERGANA REGION) //Innovative Development in Educational Activities. – 2023. – T. 2. – №. 7. – C. 342-347.
42. Murodilov K. T., Muminov I. I., Abdumalikov R. R. PROSPECTS OF PEDAGOGICAL SKILLS IN CADASTRAL SCIENCES //JOURNAL OF ENGINEERING, MECHANICS AND MODERN ARCHITECTURE. – 2023. – T. 2. – №. 5. – C. 12-16.
43. Khakimova K. R., Murodilov K. T. MODERN METHODS OF MANAGING GEODESY, CARTOGRAPHY // " ENGLAND" MODERN PSYCHOLOGY AND PEDAGOGY: PROBLEMS AND SOLUTION. – 2023. – T. 10. – №. 1.
44. Murodilov K. T., Muminov I. I., Abdumalikov R. R. DESIGN PRINCIPLES FOR EFFECTIVE WEB MAPS //SPAIN" PROBLEMS AND PROSPECTS FOR THE IMPLEMENTATION OF INTERDISCIPLINARY RESEARCH". – 2023. – T. 14. – №. 1.