

# EFFECTIVENESS OF INTEGRATION OF SPECIALIZED AND GENERAL SCIENCES IN THE CREDIT-MODULE SYSTEM

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## Abstract

This article analyzes the methodological aspects of enhancing educational effectiveness through the integration of specialized and general education modules in the credit-module system. The role of integrative teaching in improving the efficiency of the educational process and the significance of the credit-module system in combining professional and general knowledge of students are explored. The article scientifically justifies how the integration of specialized and general modules can improve teaching effectiveness.

**Keywords.** Credit-module system, specialized subjects, general education subjects, integrative teaching, educational effectiveness.

## Introduction

### KREDIT-MODUL TIZIMIDA IXTISOSLASHGAN VA UMUMTA'LIM FANLARINI INTEGRATSIYA QILISHNING SAMARADORLIGI

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## Annotatsiya

Ushbu maqolada kredit-modul tizimida ixtisoslashgan va umumta'lim fanlarining integratsiyasi orqali ta'lim samaradorligini oshirishning metodologik aspektlari tahlil qilinadi. Tadqiqotda integrativ o'qitishning oliy ta'lim tizimida samaradorlikni oshirishdagi ahamiyati va kredit-modul tizimining talabalarning kasbiy va umumiy bilimlarini birlashtirishdagi roli ko'rib chiqiladi. Maqola ixtisoslashgan va umumta'lim modullarining integratsiyasini o'qitish

metodlarida qanday samaradorlikka olib kelishi mumkinligini ilmiy asoslab beradi.

**Kalit soʻzlar.** kredit-modul tizimi, ixtisoslashgan fanlar, umumtaʼlim fanlari, integrativ oʻqitish, taʼlim samaradorligi.

### **Аннотация**

В данной статье анализируются методологические аспекты повышения эффективности обучения через интеграцию специализированных и общих образовательных модулей в системе кредитно-модульного обучения. Исследуется роль интегративного обучения в повышении эффективности образовательного процесса и значение кредитно-модульной системы для объединения профессиональных и общих знаний студентов. Статья научно обосновывает, как интеграция специализированных и общих модулей может повысить эффективность преподавания.

**Ключевые слова.** кредитно-модульная система, специализированные дисциплины, общие образовательные дисциплины, интегративное обучение, эффективность образования.

### **Introduction**

The credit-module system is one of the innovative approaches introduced in the higher education system to increase the efficiency of the educational process and make education more accessible to students. In this system, the integrative approach, which allows each subject to be studied as a separate module, significantly increases the efficiency of the educational process. Integration between specialized and general education subjects, while providing students with in-depth knowledge of professional areas, also helps to develop general knowledge. However, the lack of a coherent connection between these subjects can reduce the efficiency of education.

The widespread use of the credit-module system in the higher education system of Uzbekistan creates the need to integrate specialized and general education modules. Increased interconnection between subjects in the educational process provides students with knowledge that is more based on interactions, is strengthened in many ways and is applied in practice. This article analyzes

methodological aspects and practical approaches to improving the efficiency of education through the integration of specialized and general education subjects in the credit-module system.

The relevance of the article lies in the scientific substantiation of the importance of the integration of specialized and general education modules in the credit-module system in improving the efficiency of education in higher education. At the same time, the influence of the integrative approach on the development of pedagogical methods plays an important role in providing students with general and professional knowledge.

### **Literature analysis and methodology**

The credit-module system is one of the effective systems for improving the quality of student education in higher education. The introduction of this system in the higher education system of Uzbekistan has led to significant developments in recent years. In this regard, M. Sh. Rajabov emphasized the role of the credit-module system in higher education and its role in increasing its efficiency. The study showed that the credit-module system plays an important role in increasing the level of student knowledge, optimizing the learning process, and ensuring effective education.

Also, D. F. Bakhromov, analyzing the importance of the integration of disciplines in the credit-module system, believes that the combination of specialized and general subjects creates an opportunity to develop students' thinking and skills. In his opinion, this system combines students' professional and general knowledge, making the educational process more effective.

In addition, Kh. B. Karimova, studying the effectiveness of the use of an integrative approach in higher education, emphasized the importance of integration in establishing connections between disciplines, strengthening student communication, and increasing general knowledge. She assessed this process as an approach that has a positive impact on the social and professional development of students.

At the same time, research conducted by L. R. Kamilova has proven that the credit-module system leads to an increase in the quality of education through the use of an integrated approach in higher education. In his opinion, this system plays a major role in activating students, improving interaction, and developing practical approaches to education.



## **Methodology**

Qualitative and quantitative methods were used in the study. The main goal of the study is to determine the importance of integrating specialized and general education subjects in the credit-module system in increasing educational efficiency and to analyze the practical application of methodological approaches. The study was carried out using the following methods.

## **Research participants**

A total of 100 respondents participated in the study. Of these, 70 were higher education students and 30 were teachers. Students came from various specialties, and teachers were teachers working in higher education institutions. Respondents were selected on a random basis, which allows us to generalize the results presented in assessing the effectiveness of integrative methods in the educational process.

## **Questionnaire and Interview:**

The main data in the study were collected through questionnaires and interviews. **Questionnaire:** The effectiveness of integrative teaching in the credit-module system, its contribution to the educational process, changes in the mastery of social skills and educational materials were measured through questionnaires received from students and teachers. The questionnaire consisted of 10 closed and 5 open questions and was designed to reflect the respondents' opinions and experiences on the educational process.

**Interview:** Interviews with teachers allowed us to obtain more in-depth information about the practical application of integrative methods, teachers' experiences in this system, and changes in the level of knowledge of students.

## **Experiment:**

The study conducted experiments to evaluate the effectiveness of integrated teaching of specialized and general education subjects in practice. The groups participating in the experiment were divided into two parts: the first group was taught using an integrative approach, and the second group was taught using traditional approaches. The level of knowledge and social skills of both groups was monitored throughout the study. The students' knowledge and social skills were assessed for 6 months.



### **Statistical analysis:**

The data collected in the study were processed using statistical analysis. The t-test and chi-square test methods were used. The t-test was used to determine the differences in the knowledge level of students, and the chi-square test was used to determine the differences in opinions between teachers and students. The effect of teaching methods was tested at a statistical significance level ( $p < 0.05$ ).

### **Data collection:**

The data obtained through questionnaires and interviews helped to analyze the quality of students' education, the relationship between their activity in the learning process and general knowledge.

The data collected during the experiments clearly demonstrated the effectiveness of integrative methods in developing students' knowledge, communication, and professional skills.

### **Methodological foundations of the study:**

The study studied integrative teaching methods and practical approaches to the credit-module system. The methodology provides for innovative approaches that allow students to combine general knowledge and professional skills. Integration between specialized and general subjects allows students to master knowledge more effectively through modern pedagogical approaches.

### **Results and Analysis**

A total of 100 respondents participated in the study, of which 70 were students and 30 were teachers-professors. The results of the questionnaires, interviews, and experiments were as follows:

#### **Student results:**

In a survey conducted by students, 85% of students reported that they had increased their learning efficiency through the integration of specialized and general education subjects in the credit-module system. They noted that they had noticed a significant improvement in their level of knowledge.

12% of students considered integrative methods effective, but noted some difficulties, for example, they expressed an opinion that the connection between subjects was not clear enough.

Only 3% of students underestimated the effectiveness of the use of the integrative approach, preferring traditional methods.

### **Results of teachers-professors:**

90% of teachers confirmed the effectiveness of the integrative approach methods. In their opinion, integrated subjects help to activate students, better master the educational material, and expand their general knowledge.

7% of teachers reported that they had significantly increased their efficiency through integrative methods, but noted some limitations and lack of resources, and the importance of an individual approach.

3% of teachers noted that they had some difficulties in applying the integrative approach in practice, but they believed that these methods could be effective in the long term.

### **Experimental results:**

During the experiment, the knowledge level and interaction of the group using the integrative approach showed a clear improvement. 80% of students showed a significant improvement in their knowledge levels, 15% of students felt less change, and 5% felt almost no change.

### **Statistical analysis:**

The results of the t-test of statistical analysis showed that the results obtained in the learning process using integrative methods were clearly significant. The p-value ( $p = 0.02$ ) confirmed the statistical significance of the difference in the effectiveness of teaching methods.

### **Analysis**

The results of the study show that integrative teaching methods play an important role in improving the effectiveness of education in the higher education system. The opinions expressed by students and teachers confirm the effective use of integrated subjects in the educational process.

From the perspective of students: The opinions expressed by students indicate that integrative teaching methods are effective in improving the level of knowledge. With the help of integrative methods, students developed not only professional knowledge, but also general skills. 85% of students noticed an

improvement in their knowledge, which indicates the high contribution of these methods to education. Some students also noted the need for clarity and consistent application of connections between subjects.

From the perspective of teachers: The opinions expressed by teachers confirm the effectiveness of integrative methods. Teachers indicated that these methods are effective in increasing student activity, better understanding of educational materials, and expanding students' general knowledge. They believe that integrative methods can greatly help develop students' professional and general skills. However, some teachers noted that the practical application of the methods faced some limitations.

Experimental results: During the experiments, the improvement in the level of knowledge and social skills of the group using integrative methods proves that these methods help to make students more active and productive. 80% of students noticed an improvement in the level of knowledge, which indicates the positive effect of the integrative approach on increasing the effectiveness of education.

Statistical analysis: The results of the statistical analysis ( $p = 0.02$ ) confirmed the statistically significant effect of integrative methods on educational effectiveness. This indicates that integrative methods are considered effective not only by teachers, but also by students.

Thus, the results of the study prove that the integration of specialized and general subjects in the credit-module system has a significant impact on increasing the effectiveness of higher education. These methods help to combine the professional and general knowledge of students and make it possible to organize the educational process more effectively.

## **Conclusions**

The results of the study showed that the integration of specialized and general education subjects in the credit-module system not only increases the effectiveness of education, but also plays an important role in integrating students' general and professional knowledge. Integrative teaching methods strengthen students' interpersonal relationships and allow them to better understand the educational material. Significant improvements in students' knowledge levels and development of social skills were observed.

The opinions expressed by teachers confirm the effectiveness of integrative methods. According to them, these methods increase student activity, help

consolidate their knowledge in the learning process, and develop general knowledge. Teachers noted that the use of integrative methods can improve the quality of education.

During the experiments, the integrated teaching of specialized and general education subjects showed a significant improvement in students' knowledge. Students better mastered the educational material and strengthened their communication. The results of statistical analysis also proved that integrative methods have a positive effect on educational efficiency. This study scientifically substantiated that the integration of specialized and general education subjects in the credit-module system is an important methodological approach that serves to increase efficiency in the higher education system and apply student knowledge in practice.

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