

Section 4. Pedagogy

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THE METHOD OF ORGANIZING INDEPENDENT EDUCATION IN THE CREDIT-MODULE SYSTEM IN HIGHER EDUCATION INSTITUTIONS

Abstract. It is known that in the traditional teaching model, the teacher is the main organizer of the educational process and the main source of information dissemination. In turn, classroom training is the main part of the educational process. With the transition to the credit-module system, the role of the teacher as the main organizer of the educational process and the only source of information distribution will decrease. The student is at the center of this learning process. He can get independent education. The introduction of this system should be an important factor in improving the quality of education and strengthening the relationship between the teacher and the student in this process. This article analyzes the credit-module system and the issues of organizing independent education in it.

Keywords: Credit-module system, higher education, independent education, forms of independent work, auditorium, independent work outside the auditorium, method.

Introduction

The credit-module teaching form is a system of organizing the process of mastering the educational program based on the creation of the content of the educational module, regularly evaluating the competencies of students, monitoring the results of the educational process and final control work. A credit is a unit of measurement of the educational load (time) spent on studying and mastering subjects within a particular educational direction or program (course). A credit is the minimum amount of time allocated to a student to study independently and in the classroom, usually for one week. Credit is given to the student after completing the assigned tasks in a certain subject and successfully passing the final exam. In order to receive a diploma in the chosen direction and specialty, each student must collect credits from the advanced

and elective subjects during the academic years. Credit technology gives students the right to choose elective subjects included in the working curriculum, thereby directly participating in the formation of an individual curriculum. Students are given the freedom to choose not only subjects, but also professors. A module is a part of the curriculum in which several subjects and courses are studied. It is a set of several subjects (courses) aimed at students' ability to acquire certain knowledge and skills, analytical and logical observation. In this, the teacher organizes the educational process, gives live, video and audio lectures, coordinates and monitors the student's activities. The student learns the subject independently and completes the assigned tasks and assignments on time.

The credit-module system is a model of organizing education based on the credit-module. But its organi-

zation is a complex and systematic process in many ways. In the credit-module principle, two main aspects are important: ensuring independent work of students; assessment of student knowledge based on rating.

Materials and methods

The formation of the credit module system is related to the US education system. Initially, it was created in order to liberalize educational processes and determine the weekly academic load of the student. In 1869, Charles William Eliot, the president of Harvard University and prominent American education devotee, used the phrase “credit hour” for the first time. Thus, in the 1870s and 1880s, a system measured by credit hours was introduced [5].

In general, the organization of the educational process based on the credit-module system gives the following advantages to higher education institutions:

- the possibility of creating a modular structure of the curriculum;
- the possibility of using credits to evaluate the intensity of the cocktail;
- the possibility of using point rating systems to evaluate knowledge;
- Participation of students in the formation of an individual study plan;
- the possibility of increasing the share of self-education in the educational process;
- Ability to increase the flexibility of educational programs.

Studying with the credit system and mastering educational programs created an opportunity for students to independently plan the educational process, control its quality, and improve educational technologies. The introduction of the measure of credit accumulation not only gave the student great freedom, but also provided an opportunity to independently plan the academic process in order to become a competitive specialist in the chosen field in the future. At the same time, it also led to improvements in the assessment system and educational technology. We express the development cy-

cle of the credit module system as follows: in 1872, Harvard University created the US credit system (USCS), and in 1989, the European credit system developed the rules of a new credit module system and called it the European Credit Transfer System (ECTS). Student exchange between universities of the European Union countries begins to develop. By 1999, the international forum for the development of mutual cooperation between the ministries of higher education of European countries, called the Bologna process, will start working in Europe. As envisaged in the Bologna Declaration, the credit-module system, with an emphasis on independent learning, mainly serves to fulfill two functions [6]:

- the first one ensures the mobility of students and teachers, i.e. their free transition from one higher education institution to another HEI without obstacles (transfer of study or work);
- the second, the academic load – credit is accurately calculated for all educational and scientific activities of the student in the chosen field of study or specialty. The credit score shows how much the student has mastered in the chosen program

Results and discussion

The following are recognized as the main tasks of the credit module system [7]:

- organization of educational processes on the basis of modules;
- determining the value of one subject, course (credit);
- assessment of students’ knowledge based on the rating score;
- to enable students to create their own study plans individually;
- increasing the share of independent education in the educational process;
- the convenience of educational programs and the ability to change based on the demand for a specialist in the labor market.

Module-based training programs are developed according to a special scheme and include:

- full disclosure of educational goals and tasks;
- requirements for the student’s qualification, which must be acquired after starting and finishing the subject (course);
- a summary (syllabus) of each subject included in the module, i.e. topics of lectures, a plan of seminars and practical exercises, tasks designed to evaluate independent education;
- a brief description of teaching: methods and means of teaching; consists of methods and forms of knowledge assessment.

In the module-based teaching system, a rating evaluation system is used to evaluate students’ knowledge, skills, and abilities. In it, all the student’s educational activities, that is, the knowledge acquired and mastered in the classroom and outside the classroom, are evaluated by giving points.

A credit (credit) is a unit of measurement of the educational load (time) spent on studying and mastering the subjects of a particular educational field or program (course). A credit is the minimum amount of time a student is allotted for classroom and independent study, usually one week, as determined by a regulatory document. Credit is given to a student after completing the assigned assignments in a specific subject and successfully passing the final exam.

Each student must accumulate credits in order to obtain a diploma in the field and specialty of his choice in the future. The accumulated credit will serve the student to improve his qualifications or receive additional higher education throughout his life. In economic terms, accumulated credit becomes a student’s academic “asset.”

According to international experience, the educational process in the credit-module system consists of 2–4 modules per semester. The subjects included in the module are formed from easy to complex, from theoretical-methodological subjects to applied subjects and logically based on the principle of complementing each other. In order for a student to become a specialist, it is necessary to have not only

information related to the field, but also the ability to process and introduce it into production practice.

Module-based training programs are developed based on a special scheme and include [8]:

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As we know, many things in everyday life have their own unit of measure. For example, the unit of measurement of time is a second, the measurement of length is a meter, the measurement of weight is a kilogram, the measurement of liquid is a liter, and the measurement of electric voltage is an ampere. Then a question arises: is there a unit of measurement of education, including higher education? You can say that the units of measurement of higher education are bachelor’s, master’s and doctoral studies. But these are not units of measurement of education, but its stages. Unfortunately, in our country, there is currently no unit of measurement that is understandable to everyone, which regularly evaluates the progress of students of higher education and their formation as specialists.

First of all, the credit-module system brings to the higher education system of our country a more perfect, modern, but understandable unit of measurement of education than the current one. According to it, higher education programs are di-

vided into different subjects and modules aimed at specific learning outcomes. Each subject or module is reflected in a certain number of credits depending on the amount of study load. For example, each subject can be reflected in an average of 5, 6 or 7, 5 credits. It is determined that a student must accumulate a certain number of credits in each semester and academic year, and after collecting the appropriate number of credits, he will be awarded a bachelor's or master's degree.

Credit technology gives students the right to choose elective subjects included in the working curriculum, thereby directly participating in the formation of an individual curriculum. They are given the freedom to choose not only subjects, but also professors and teachers. Giving students the opportunity to choose subjects is a positive thing. It is also considered to be a unique value indicator of the evaluation of educational processes.

The student was not allowed to study in the library, let alone to choose the subjects and professors. A student's absence from classes was considered a serious loss, if it exceeded 30 hours in one semester, a warning was issued, and if it exceeded 74 hours, it was up to expulsion from the student ranks. Whether the student likes this subject and the teacher or not, whether the given knowledge does not meet the requirements, whether it is left behind or not, he had to sit in the audience! So, in the traditional system, no materials were provided on what kind of knowledge a student would acquire in the future, what kind of professors-teachers would teach, the profile of the course, the summary of subjects, and the personnel who graduated from higher education institutions with a family education diploma were in demand. not at all competitive.

Distribution of credits by modules; After the profiles of higher education programs are created, a list of subjects and activities is formed. Academic subjects in the program are divided into a number of modules, and credits are allocated to each of them. When the credits are distributed for each module,

it is determined based on the estimated amount of study load needed to be completed by the student in order to achieve the study results determined in the future. In this case, the total amount of study loads is calculated based on how much time the student will spend to complete them. We remind you that in the European ECTS credit-module system, 1 credit is equivalent to 25–30 hours of study [9].

Students and teachers may wonder how much of this total study load corresponds to classroom hours. The rules of the credit module do not set specific requirements or limits on this issue.

There are many reasons for this. For example, learning processes or modules do not always include classroom hours. For example, we can cite the graduation practice, diploma work, and similar study elements and modules in the curriculum. As you can see, these reading items do not have audience hours. However, when we analyze the practice of universities operating in the credit-module system, we can observe that the ratio of classroom hours and independent study hours in most of them is 40% to 60% in subjects and modules with classroom hours. In other words, this ratio is 1:1.5. That is, for every 1 hour of lessons set for a specific subject, the student will have to study and prepare for an hour and a half independently outside of the lesson [5].

Choosing the most optimal forms of independent education in the field of mathematics and informatics, applying adequate methods of their use, will lead to the formation of students' knowledge, skills and qualifications, and their effective performance of independent, creative tasks in the process of practical activity.

Although the forms of organizing independent education are manifested at every stage of the educational process, we tried to scientifically substantiate the forms of independent education of students studying in the field of mathematics and informatics in the classroom and outside the classroom.

a) forms of independent education organized in the auditorium:

Form 1a – listening to a lecture and recording what was said in a notebook; Form 2a – performing practical and laboratory work;

Form 3a – learning to design and implement the educational process on the basis of pedagogical and information technologies.

b) forms of independent education organized outside the auditorium: Form 1b – working with educational literature;

Form 2b – preparation for control work; Form 3b – preparation of a lecture;

Figure 4b – distance education technology.

Below is a brief description of the content of the forms of independent education organized in the auditorium.

Figure 1a. Listening to a lecture and writing down what was said in a notebook. In the process of listening to a lecture in the fields of mathematics and informatics and recording it in a notebook, the sources of the lecture are written on one side of the page, leaving space on the other side.

On the second side, it is recommended to write the conclusions, technical solutions, opinions, questions, answers to questions, facts and put various signs. That is why sometimes wide margins are left.

2a – fig. Carrying out practical and laboratory work. Practical training is focused on strengthening the student's methodological knowledge, transferring it to a new situation, and developing general pedagogical concepts and basic pedagogical skills to solve practical problems and situations.

The main essence of laboratory training is that students independently perform various tasks related to the topic or conduct experiments.

Forms of practical training: designing various pedagogical-technological situations, solving methodological issues, completing assignments, participating in debates with teachers.

The main activity of students in practical and laboratory work is technological exercises.

3a – fig. learning to design and implement the educational process on the basis of pedagogical and information technologies.

Mathematics and informatics students learn to design the educational process based on pedagogical and information technologies learned in lectures, practical and laboratory sessions, mainly in the process of pedagogical practice. In this, students can creatively apply the knowledge acquired in certain conditions and choose the optimal options for education;

methodical processing of material that students should learn; conducting scientific and methodical research; students should have the skills to arouse interest in mathematics and develop interests.

The content of forms of independent education organized outside the auditorium.

1b – fig. Work with educational literature. Working with educational literature outside the auditorium is one of the main forms of independent education. Working with educational literature is a very easy and convenient way. All learners should be well versed in working with educational literature. Educational literature can be understood as textbooks, training manuals, methodical literature, information, instructions, etc.

2b – fig. Preparation for control work. The process of preparing for exams and control work is also one of the main forms of independent education.

In the course of education, students are required to take great responsibility in passing exams and control work. In exams and supervision, students report on how well they have mastered the curriculum. In order for students to be evaluated positively, they must prepare perfectly for the supervision work based on their wishes. Even if the student thoroughly prepares for each lesson on time, he should still re-read, summarize and systematize what he has learned before the control work.

3b – fig. Preparing a lecture. In the process of teaching in higher education institutions different forms and methods of education are used. The main

form of education is lecture. Preparing a lecture is a very complicated and labor-intensive task. Future undergraduate teachers of mathematics and informatics will have to prepare lectures in geometry, in the course of pedagogical practice.

Both during the lecture and in various practical exercises, the main focus is on developing students' independent thinking, increasing their knowledge and skills.

4 b – fig. Distance education technology. Distance education technology is used to solve the problems encountered in the implementation of the traditional education system or when the conditions require it. It allows to increase the efficiency of education.

Independent education is the basis of the distance education process, so students' creative thinking develops. In distance education, the duration of the educational process is not fixed. The student performs the control work and sends the answer independently, at a time convenient for him. This situation serves to increase the effectiveness of distance education.

Conclusion

In the ECTS system, the distribution of credits by educational programs, by academic years and by semesters is determined in advance. In this case, higher education institutions cannot independently determine the amount of credits that are determined according to educational programs, academic year or semesters. There are clear rules for determining this.

Distribution of loans by programs. The distribution of credits by educational programs is carried out depending on the levels of the higher education system of each qualification. In the higher education institutions of the Republic of Uzbekistan operating on the ECTS system, this distribution is 240 credits in four academic years for bachelor's courses, 120 credits in two academic years for master's courses, and based on the characteristics of doctoral programs. output can be defined differently.⁵ These distribution rules can be described as follows:

Distribution of credits by academic years and semesters. The distribution of credits by academic years and semesters is as follows: 1 year is equal to a total of 60 credits, 1 semester is equal to a total of 30 credits. However, in educational programs where the duration of one academic year consists of 3 semesters instead of 2, 60 credits are divided into 3 equal parts.

Distribution of credit by modules. The distribution of credits by modules is carried out by higher education institutions, and sometimes by the relevant faculty, and is approved by the council of higher education institutions.

The distribution of loans is mainly carried out in two ways:

- Distribution by modules;
- Distribution without modules;

In cases of distribution of credits in this form, these methods have their own advantages and disadvantages.

The "credit-module" system of education is gradually entering the higher education system of our republic. At present, the issue of proper application of this system to the educational process by the institutions of higher education is gaining importance. Initial steps are being taken to abandon the negative aspects of the traditional education system and organize work within the requirements of international standards in higher education institutions of our republic. The credit module system, its goals and objectives, advantages, and the organization of the third semester in the credit module system were discussed in this graduation thesis. Proposals and recommendations have been developed.

In short, the credit-module system of education includes the control of all forms of education (auditory and non-auditory), a measure that shows the result achieved, not the number of hours studied in the educational process. It is important in increasing the efficiency of education because it is considered as a unit.

The study and analysis of the introduction of the credit-module system shows that it has its own characteristics in different countries of the world. The expediency and effectiveness of the credit-module system is seen in the fact that it is widespread in the education system of many countries of

the world, because the development of educational programs provides students with the opportunity to independently acquire knowledge and increase the level of creative activity of their independent work. Therefore, the quality of education will increase completely.

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