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Credit - modular Training in Improving the Cognitive Competencies of students in an Ergonomic Aspect

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Abstract: The article presents the value of modular education at the university, which is expressed in the development of independent thinking under the guidance of a teacher. Ultimately, modular training enhances the cognitive and qualifying competencies of students.

Keywords: modular training, independent study of the subject, improvement of the student's cognitive competencies.

Introduction

In 1997, the Council of Europe and UNESCO developed and adopted the Lisbon Convention on Qualifications Relating to Higher Education in European Countries. The Lisbon Agreement did not pursue the unification of higher education, but recognized and respected the value of diverse educational systems. Citizens of European countries should have access to the common values of education, science and culture of all countries. A year later, France, Italy, Great Britain and Germany signed the Sorbonne Declaration aimed at creating an open European higher education area. In 1999, 29 European countries in the city of Bologna officially declared and began the process of uniting four thousand European higher education institutions [4].

Some of the objectives of the Bologna Declaration are:

- the introduction of commonly understood comparable qualifications in the field of higher education.

- transition to a two-stage structure: bachelor's and master's programs.

- the introduction of an assessment of the complexity of courses in terms of credits (credits) and the reflection of credits in the diploma.

- development of additional education – "education throughout life".

Based on these provisions, modular-credit training was adopted.

In Uzbekistan, a material and scientific-educational-methodical base has been created for the introduction of modular-credit education, along with traditional, distance learning, which is emphasized in the Law "About Education". In the Republic, a number of universities (TSPU, BSPU) are gradually introducing elements of modular-credit education.

Literature and Review

Modular learning is one of the young alternative technologies and has recently received large-scale use. The concept of modular learning was derived from the term "module", one of the meanings of which is "functional unit", or a block of information that is similar in content to learning topics.

The main goal of modular training is the creation of flexible educational structures, both in terms of content and organization of training, guaranteeing the satisfaction of needs, new interests of a person.

Modular learning technology should be understood as the implementation of the learning process by dividing it into systems of "functional nodes" - professionally significant actions and operations that are performed by the trainee more or less unambiguously, which allows achieving the planned learning outcomes. The essence of modular education is that it allows each student to achieve the specific goals of educational and cognitive activity completely independently. In this case, training modules serve as a means of modular training. The module can also be a training

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program, which is individualized in terms of content, teaching methods, level of independence, as well as the pace of learning.

Modular training is training in which the educational material is divided into information blocks-modules. The technology is built on the independent activity of students who master the modules in accordance with the goal of learning remotely. The latter constitutes the ergonomic factor of the pedagogical and ergonomic system, as an information and communication tool [2].

The main element of the structure in this technology is the information module. A module is a separate block that includes theoretical material, training tasks, methodological recommendations for students. Thematic blocks - information should be compiled in electronic form, designed with an ergonomic approach (tables, graphs, drawings, etc.) for better assimilation by students. Blocks of information may include 2 or more topics that are similar in content

An integral element of the module is control questions and tests, as well as keys for self-examination or mutual examination. Through the study of the module, students achieve a certain didactic or pedagogical goal.

The content of the lesson is constructed from several logically interconnected modules, each of which solves a specific learning task. The module is given a fixed time to complete. Together, all modular blocks are aimed at achieving subject and personal results that are focused on the personality of each student, which meets ergonomic provisions. The modular learning technology is based on an activity approach, i.e. on the independent activity of students in mastering the material [3]. The minimum duration of a lesson is 2 academic hours. Students must be psychologically prepared for independent activities with a high degree of intensity.

Types of modular training:

- modular program. This is the planning of the entire course of modular classes, which are interconnected by a goal that ensures the achievement of subject, personal and regulatory results. The modular curriculum for the discipline should clearly regulate both the classroom and independent parts of the development of the material and is designed to free the teacher from purely informational functions. The modular program is developed according to a specific scheme and includes:

- a complete list of educational goals and objectives;

- requirements for preparedness (competencies) of students before and after the completion of the discipline;

- characteristics of each module of the discipline (a list of module units with their summary, abstracts of lectures, plans for seminars and laboratory-practical classes, topics of controlled independent work, creative tasks, schedule for completing and submitting tasks);

- brief organizational and methodological characteristics (basic forms and methods of teaching, forms and methods of monitoring results in the learning process, teaching policy);

- a system for assessing learning outcomes (including a schedule for accumulating assessments).

Modular learning is a technology that allows you to switch to the subjective basis of learning and provides the student with the development of his motivational sphere, intelligence, independence, collectivism, inclinations, and the ability to exercise self-management of educational and cognitive activities, which is characteristic of the pedagogical-ergonomic training system. Modular training with the use of information and communication means involves a clear structuring of the content of training. Modular learning provides for the creation of positive motives for learning due to the novelty of the content, entertainment, emotional content, organization of educational search, reliance on life experience, overcoming cognitive difficulties. The module often coincides with the topic of the subject, however, unlike the topic in the module, everything is measured and everything is assessed (assignments, work, class attendance, starting, intermediate and final levels of the student). The module clearly defines the learning objectives, objectives, and levels of study of the material, as well as the skills and abilities that the student must master. In modular training, everything is pre-programmed, not only the sequence of training, but also quality control. This is a well-built learning technology that is based on evidence-based data and does not allow any impromptu. Students in modular training should always know

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the list of basic concepts, skills, abilities for each module. Based on this list, questions and learning tasks are compiled. Form of control - as a rule, a test is used. Modular learning is very close to programmed learning, often used in distance learning. The training course, as a rule, includes at least 3 modules. Separate modules can be a theoretical block, practical work and final projects. When developing a module, it is taken into account that each module should provide an independent portion of knowledge. The module is evaluated according to the scoring system, which is given to each module separately. A certain minimum score is set, which the student must score at the end of each module. In modular training, the rating assessment of tasks is most often used: each task is evaluated in points, the rating of this task and the deadlines for completing this task are set. The main principle of rating control is the control and evaluation of the quality of knowledge and skills, taking into account the systematic work of students. After graduation, based on the module assessments, an overall assessment is determined. Students can only increase their unit grades during the learning process, not on the exam.

A credit is a unit of study load required for the assimilation of content modules or a block of content modules.

In the process of pedagogical experiments, the amount of ECTS credit was set at 36 academic hours and the annual student workload was set at 60 ECTS credits. The number of ECTS credits per academic discipline is determined by dividing the total amount of hours planned for the study of the discipline by the price of the credit (rounded up to 0.5 credits). For example, if 108 hours are allocated for studying a discipline, then this corresponds to three credits. In this case, the discipline is formed from three modules. The module-rating system of knowledge assessment provides for a 100-point scale, that is, 100 points is the maximum number of points that a student can receive for academic success in the process of studying a content module. The assessment of a student's knowledge for a content module takes into account the grades obtained for all types of classes conducted, for current and final testing (for example, for performing practical, laboratory classes, etc.) taking into account weight coefficients. The total assessment of the assimilation of the educational material of the discipline is determined without a semester exam as an integrated assessment of the assimilation of all content modules, taking into account weight coefficients. A student who has scored the required number of points during the semester has the opportunity to:

- do not take an exam or test and receive the score as a final grade;
- take an exam in order to improve their rating in the discipline.

a student who scored less than the required number of points during the semester is required to take the exam. The academic success of a student is determined using the knowledge assessment system that is used in the university, but with the obligatory reduction of grades to the national scale and the ECTS scale.

Conclusion

The individual academic rating of a student is formed from the ratings based on the results of mastering all the disciplines he studied.

In accordance with the provisions of the Bologna Declaration, a module-rating system for assessing knowledge on the national scale ECTS (European Grade Transfer System) has been developed and introduced, a unified assessment system based on 2 educational levels: undergraduate and postgraduate. The created education system allows for transparency and comparability of training programs.

The assessment system for module-credit training can be presented in the following table:

According to the ECTS scale	According to the national scale	On the scale of the educational institution (as an example)
A	Excellent	90−100
BC	Good	75−89
DE	Satisfactorily	60−74
FX	Unsatisfactory with the possibility of	35−59

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	retake	
F	Unsatisfactory with mandatory re-course	1–34

State attestation of students is carried out in accordance with the current regulatory framework of universities.

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