TECHNOLOGICAL SUPPORT FOR ORGANIZING STUDENTS' INDEPENDENT EDUCATION OF PHYSICS

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Abtsract. *This article explains the technological support for self-study of students in physics in higher educational institutions, as well as methods for its implementation.*

Keywords: *Score-rating system, independent training, technology support, report, case.*

Annotatsiya: *Ushbu maqolada oliy ta'lim muassasalarida talabalarning fizika fanidan mustaqil ta'limining texnologik ta'minoti tushuntirilgan, shuningdek uni amalga oshirish usullari haqida fikrlar bayon etilgan.*

Kalit so'zlar: *Ball-reytng tizimi, mustaqil ta'lim, texnologik ta'minot, referat, keys.*

Аннотация. *В данной статье объясняется технологическое обеспечение самостоятельного обучения студентов физике в высших учебных заведениях, а также методы его реализации.*

Ключевые слова: *Балл-рейтинговая система, независимое обучение, технологическая поддержка, отчет, кейс.*

The procedure for evaluating students' educational activities and their achievements is regulated by regulatory documents.

The point-rating system of evaluation (BRT) is actively used in the educational process of higher education. Its uniqueness lies in the fact that the grade on the subject included in the exam sheet and test book reflects not only the results of passing the exam or test, but also the results of the student's academic work throughout the semester. The use of BRT in the educational process of the university is based on individual approach to students and assignment rating. Task rating allows the student to correctly calculate his strengths, reveal individual qualities more fully, and objectively assess his level of knowledge in the subject. In addition, BRT allows you to earn additional points in addition to the points earned during the semester.

If BRT is implemented through student-oriented educational technologies (problem, dialogue, discussion, heuristic, game, etc.), it ensures the highest informational, procedural and creative productivity of students' independent cognitive activities. This approach to assessing the educational achievements of students allows the implementation of a pedagogical model based on competence with specific forms of learning activities.

Rating in modern education means the following:

- a system of procedures that allows evaluating the results of students' educational activities, a numerical indicator of educational achievements in connection with the highest achievements of all students in this field.

- as a means of individualizing the educational process, it allows creating a system of tasks for current and intermediate control of the development of the educational plan.

Determining how to calculate the rating is an important component of BRT. Of particular importance in the use of BRT is the weighting coefficient of the academic subject, which is determined based on the number of credits and hours of its development. The value of the weighting coefficient determines the maximum number of points that a student can receive after completing a learning module. In addition, weight indicators are used to determine the place and role of control forms (current, intermediate, final) in educational practice.

In modern higher education, there is a five-point system for evaluating educational achievements: 1 point - bad, 2 points - average, 3 points - sufficient, 4 points - good, 5 points - excellent. Although the concept of "rating" is not used within such a model, we emphasize that the conformity of the student's personal educational achievements to the formalized educational scale is nothing more than an educational rating.

On this basis, it is possible to correlate the traditional five-point and rating evaluation systems:

100-86 points (high level) - "excellent", 5 points;

71-85 points (advanced level) - "good", 4 points;

56-70 points (threshold level) - "satisfactory", 3 points;

Below 55 points (low level) - "unsatisfied", 2 points.

For the implementation of control procedures by the teacher and self-control by students, a technological map of the academic subject is developed, in which the topics of each subject, forms of independent work, deadlines, credits are clearly defined. (if included and used) points indicated. The technological map is included in the work program of the subject and is an obligatory part of it.

Thus, the point-rating system of evaluation not only allows to carry out control and evaluation activities within formalized procedures, but also provides management of the process of evaluation of students' independent work.

One of the ways to check the quality of students' independent work is control:

- corrective (performed during individual consultations on the implementation of an independent form of work);

- determination (on the results of implementation of special forms of independent work);

- self-control (performed by the student);

- current (achievements in the implementation of the control class and other forms of independent work specified in the work program)

- intermediate (assessment of the learning result as a result of the student's performance of all forms of independent work).

System of criteria and indicators for evaluating the implementation of independent forms of education

Let's take a closer look at working with the system of criteria and indicators for evaluating the performance of independent forms of education of students. One of the important forms of independent education of students is preparation for the mid-term examination, which usually includes an oral or written response to an exam or classroom test. Assessment of the student's educational achievements in the exam or test is carried out in three stages: "Knowledge", "Skills", "Skills and experience".

The final result is calculated according to the following algorithm:

- the maximum number of points (100) or divided by the number of criteria in the sections "Knowledge", "Skills", "Skills and work experience";

- the numerical value of each indicator in the relevant section is set;

- the values of the indicators obtained as a result of the assessment are summarized for all departments;

1. The result of studying in the "Knowledge" section (100 points).

1.1. Criterion "Completeness of knowledge":

- if the presentation of acquired knowledge is complete, in accordance with the requirements of the curriculum, there are only small errors that can be corrected by students independently - 25 points.

- if the presentation of acquired knowledge is complete, in accordance with the requirements of the curriculum, if there are some small mistakes, they will be corrected independently after the teacher shows - 15 points;

- if the presentation of acquired knowledge is incomplete, if there are serious mistakes corrected with the help of the teacher - 10 points;

- if the presentation of the educational material is incomplete, there are serious errors that have not been corrected even with the help of the teacher - 0 points

1.2. Criterion "Systematization and generalization of knowledge":

- systematic description of the material, understanding of the laws of scientific processes, mastering the system of interdisciplinary concepts - 25 points;

- systematic description of the material, understanding of leading scientific ideas, system of scientific relations - 15 points;

- repeating the main theoretical rules of separate concepts, describing facts without understanding important relationships - 10 points;

-knowledge at the representative level (orientation and field of science) — 0 points.

1.3. Criterion "depth of knowledge":

distinguishing the important features of the learned thing, forming a conclusion and generalization with the help of analysis and synthesis - 25 points;

distinguishing the important features of the studied thing with the help of analysis and synthesis operations, forming conclusions and generalizations, some small mistakes are allowed - 15 points.

difficulties in identifying important features of the studied object, forming conclusions and generalizations - 10 points;

inability to choose random signs of the subject, generalize, draw conclusions - 0 points.

1.4. "Knowledge efficiency" criterion:

self-presentation of changing situations in which the acquired knowledge can be applied - 25 points;

self-presentation of changing situations in which the acquired knowledge can be applied, the teacher's leading questions are used as support - 15 points;

Difficulties in presenting changing situations where the acquired knowledge can be applied - 10 points;

Changeable situations in which the acquired knowledge can be applied are not shown - 0 points.

2. The result of training in the "Skill" section (100 points).

2.1. "Problem Identification" Criteria:

the ability to identify contradictions in the educational material, the ability to independently determine the problem - 50 points;

the ability to identify contradictions in the educational material and to independently determine the problem using the teacher's leading questions as support - 35 points;

if the student identifies the contradictions in the educational material and solves the problem only with the help of the teacher - 20 points;

the student does not know how to identify contradictions and define the problem - 0 points.

2.2. Criterion "Selecting and using appropriate problem solving tools":

if the selection and application of studied activity methods (subject, meta-objective), interdisciplinary methods of problem solving are carried out independently and creatively - 50 points;

the use of learned activity methods is carried out independently - 35 points;

choosing and using the studied activity methods with the help of the teacher (teacher's auxiliary questions) - 20 points;

if the selection and application of the studied methods of activity is not carried out - 0 points.

3. The result of training in the section "Skills and experience" (100 points):

3.1. Criterion "Independent value judgments":

the student justifies and explains his assessments, proves and defends his point of view - 50 points;

the student evaluates, proves, defends his point of view - 35 points;

the ability to express one's evaluations - 20 points;

value judgment not provided - 0 points.

3.2. Criteria for "presentation of activity results":

problem statement methods, thinking patterns, logical presentation of the material using evidence - 50 points;

reasoning, logical presentation of the material using forms of evidence - 35 points;

the logic of the presentation is partially broken, the reproductive form of the presentation is used - 20 points;

there is no presentation logic, the presentation is situational - 0 points.

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