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## IMPROVING THE TRAINING OF TECHNICAL AND CREATIVE AND CREATIVE THINKING AND CREATIVE THINKING IN PEDAGOGICAL TRAINING IN HIGHER EDUCATION INSTITUTIONS OF THE ASTRONOMY USING MODERN EDUCATIONAL PROGRAMS

**Abstract:** STEM (Science, Technology, Engineering, Mathematics) education — this is a model that combines natural sciences and engineering items into a single system. It is based on an integrative approach: astronomy, physics, chemistry and mathematics are not individually taught, but in connection with each other to solve real technological problems. This approach teaches to consider problems as a whole, and not in the context of one field of science or technology.

**Key words:** STEM, technology, science, integration, planet, radius, diameter, eccentricity, mass, volume, axis, rotation period, density, space velocity, accelerations, area, ellipse.

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### Introduction

American writer William Arthur Ward “The average teacher tells a story, a good teacher explains. An excellent teacher inspires.

At a time when our country is developing rapidly, the successful support of young people, the formation of their creative, skills and assessment, based on advanced foreign practices and requirements to study international experiences on this way A close cooperation of the existing system is important to work closely with international and foreign organizations, agencies, research institutions.

Innovative progress is good, but almost every day, the development of new new inventions in the world, the appearance of new areas requires a very large skill from a modern teacher

The use of STEM Education System to increase the technical and creative skills of students and design skills gives good results.

STEM This abbreviation is spreading as follows: Science, technology, engineering, mathematics. In stem education, natural sciences, technology, engineering and mathematics are based on integration of the sciences into a single education system.

The education system of the STEM education system has a positive impact on the efficiency. Its main idea is that we create practices in this system and build the theory with our brain and have learned.

The advantage of stem education is that the student is not with posters or videos hanging on the wall, but also the topic, not with videos hanging on the wall, but also the topic. Because during the current period of rapidly developed, it is difficult to interest the lesson with posters and videos hanging on the wall.

Stem training is not only a method of thinking but also thinking. In in the educational environment of the STEM, children will not only acquire knowledge

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but also learning to use it. It helps the student of STEM can also learn events that may face in everyday life. The reason is that 4 routes are not only one fan in education.

Today, the term integration is used around the world as a social concept that encompasses various areas, such as social, regional, economic, religious, racial, organizational integration. And the question naturally arises

- What is integration?
- What is its role in the education system?
- How to integrate in the teaching of natural sciences?

Integration is derived from the Latin words *integratio*- restore, fill, and *integer*- whole, an attempt to combine, add, or replace parts to make them one.

Establishing interdisciplinary links in the teaching of science through the integration of education, achieving the integrity of educational content through the interaction between different educational programs and achieving a one-sided but comprehensive development in the student's knowledge and imagination of the world. Interdisciplinary connection (integration) serves to form the student's scientific outlook, to teach him to understand nature correctly and completely, to use it wisely, to think logically.

In modern conditions, insufficient attention is paid to ensuring their integration in the teaching of sciences. Measures to address the problem are limited to the coordination of the teaching of these subjects over time in the relevant curricula or to the partial harmonization of the content of the subjects. To solve it radically, it is necessary to develop the necessary conditions, forms, content and tools for the integration of academic disciplines, ensuring a high level of knowledge of students.

The purpose of teaching a subject is not to acquaint the student with objective novelty in science, but to form in him knowledge that has subjective novelty. In this sense, integration can be seen as a form of interdependence aimed at correcting the shortcomings of the teaching system into historically composed disciplines due to the differentiation of disciplines.

The didactic essence of the integration of academic disciplines is determined by the need to develop the order and laws of pedagogical activities that allow to determine the conceptual structure and methods of formation of new knowledge in different disciplines. In the narrow sense, the integration of educational sciences is an integral continuation of the mutual synthesis of disciplines and scientific knowledge.

The main purpose of the integration of educational sciences is the synthesis of subjective new knowledge, and the main task of integration processes is the development of pedagogical technologies aimed

at the synthesis of subjective new scientific knowledge

Didactics offers different forms of integration, such as combining teaching materials related to different subjects into one course.

In science, the process of interdisciplinary synthesis of new knowledge is slow, sometimes it spans several decades. In the learning process, the teacher will have to "bring" the student to a new subjective knowledge based on previously acquired knowledge in various disciplines in one or more sessions, or even a few minutes

The STEM education system changes our views on our education. In this case, the student increases practical skills, as well as the student will, technical creativity. Because if a student can imagine the knowledge he gained in lectures and practice, he will increase his self-confidence in this student. The Stem Education System is a logical result of uniting this theory and practice.

STEM education helps the student idea to make the truth. That is, if we say that the main purpose of traditional education is to teach knowledge and to think and think and create this knowledge, STEM teaches to combine the knowledge gained in traditional education with real skills. This increases knowledge, and the knowledge that can actually be used is truly valuable.

The most popular example of the Stem approach is the Massachusetts Institute of Technology (MIT). The motto of this institute helped the same institute to learn and get to know the concept of STEM to students.

By focusing on research statistics, starting from 2011, demand for the system of Stem education has increased 17%. In another education system, the figure increased by 9.8%. This figure is also good in the world education system; the demand for this education system is good.

Basic motto of STEM education Science is Fun! Education should be cheerful, student should be interested in reading this subject. Science should attract a student. The reason is that most astronomy thinks that most astronomy is difficult and unnecessary subject.

But in fact, it is not like that, because everything in life is astronomy. Study of the universe, universe and teaching it with everyday life gives great results.

Compared to traditional teaching methods, the stem approach can help you to spend experiences independently, create models, to create models, independently create music and movies.

STEM Education raises the student's technical and creative and design skills as well as the student's ability to create creativity.

Creativity is a creative ability to create innovations, the creative ability to solve problems. It is the cruise that helps solve certain pragmatic

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problems. Because of creative thinking, we invent new things.

Creative thinking - effective thinking creates progress (discoveries, new ideas and valuable results).

Creativity is available at each student. The students creatively think are distinguished by the presence of certain features.

The main features of creative thinking:

- Tenderness of new, unusual things
- The idea is a desire to achieve further supply through the idea of the present idea by adding new details, improving
- Courage for Rapid
- Is it permissible or difficult task, whether to face barriers and preparing for overcoming them
- Is the patience for the situation of uncertainty

The following abilities must be available:

- Finding the problem and clearly marking
- Creating a lot of new ideas
- View the problem from different sides, applying different solutions, various approaches and methods

(consciousness)

➤ Consideration and response

➤ Fulfillment of actions in the imaginary

(consciousness)

➤ Analysis and synthesis

Weaks of creative thinking development:

- Aviation of the average of Motivation
- Lots of haste to escape
- Nether or medium level of responsibility
- A positive attitude towards the results by people who are important

➤ Independence in relations with the society (independence of views, relations, conduct from society or group)

➤ Experience

Weaks of creative thinking development:

- It is very weak or vice versa very high motivation

➤ There is a lack of time

➤ High level of responsibility

➤ The opinion of criticism and valuable persons are the critical, dissatisfied, misinterpretation of

➤ Dependence on available traditions and views

➤ Untiletime experience

➤ The lack of adequate development of the abilities

➤ Disagreement and fear of differing in other people in their actions and decisions

➤ The ability to think outside of the string of thinking is slowly decreasing

Ways to develop creative thinking:

➤ Giving confidence in respect

➤ Develop the idea

➤ Expansion of worldview

➤ Promotion to learn more

- Protection and protection of the feedback
- Teaching a positive consideration, for the fear of failure, bugs (and as a result) prevent achievement, and the error is also a step towards victory.

➤ Teaching a problem that needs to be addressed

➤ The ability to think outside of the string of thinking is slowly decreasing

Necessary skills to develop creative thinking

- Logical thinking
- Formulation of expectations
- Find logical contacts between facilities, objects, facts

➤ Establishment of sterema

➤ Order in strict and non-standard situations

➤ Finding the right knowledge and appropriate methods

➤ The ability to think outside of the string of thinking is slowly decreasing

Three main elements of creative cruise

➤ Competition (Knowledge database, experience, skills)

➤ Personal adjectives (ingenuity, flexibility, perseverance)

➤ Internal and external) internal motivation - personal interest in solving the problem, self-suffration, self-awareness, self-sufficiency

STEM- the education system also increases scientific awareness and practical competence in the student.

➤ The competence of scientific awareness includes the following

➤ Based on theoretical knowledge, he knows, imagines, imagines, and explains his essence

➤ Natural events and processes observed in daily life are based on knowledge, concepts, and general laws, apply to the skills and skills of natural sciences, apply to practice

➤ Analyzes the information provided in different sources of information, uses them for educational purposes, and understands the points expressed in the communication process, expresses independent and creatively.

➤ It is aware of the socio-economic, scientific news in society and can develop its activities to develop

➤ He knows the importance of natural and other resources in society and their personal activities

➤ It explains that human rights have a positive and negative impact on the environment and knows the causes of the global and regional environmental problems

➤ He promotes ways and ideas for solving the environmental problem, he expresses his opinion

➤ Plans to discuss various studies, design, propose methods of implementation

In conclusion, through teaching on the basis of the STEM training program, the student realizes the

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unique, integral whole integrity of the universe, the scientific outlook is formed, and research skills will develop and competet.

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