

INTERDISCIPLINARY INTEGRATION IN THE TEACHING OF THE SCIENCE OF ELECTRICAL ENGINEERING AND ELECTRONICS FUNDAMENTALS IN HIGHER MILITARY EDUCATIONAL INSTITUTIONS

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Abstract

The article will talk about the importance of interdisciplinary integration in the teaching of the science of Electrical Engineering and the basics of electronics at a higher military educational institution. The areas of interdisciplinary integration that need to be considered are outlined. The areas of interdisciplinary integration that need to be considered are outlined. Concepts related to integration have been analyzed.

Keywords: Education, integration, methodology, systematic approach, research, solution, skill, interdisciplinary, didactic.

Introduction

In the educational process “how to train?” is a leading question. A systematic approach plays an important role in the effective organization of the educational process, since it assumes the use of various methods and techniques to perform the assigned tasks.

“A systematic approach is a methodological direction in science, the main task of which is to develop methods of research and construction of systems and classes of various types of complex organized objects.” Interdisciplinary integration in the teaching of the science of electrical engineering and electronics fundamentals in higher military educational institutions. Thus, the systematic approach “how to train?” is the answer. The formation of general knowledge, skills and skills of future officers is the result of the joint effort of all departments of the Institution of Higher Military Education Institution. We cannot train a mature professional by fulfilling the requirements of one discipline or direction.

The prospect of any society is directly determined by the level of development of the educational system, which is an integral part of it and an important need. Currently, reforming and improving the system of continuing education, bringing it to a new level of quality, implementing advanced pedagogical and information technologies and improving educational efficiency have become a priority of state policy.

The problem of interdisciplinary communication occupies one of the main places in modern didactics, and in turn is reflected in the research work of many scientists. In the studies of several scientists, the essence of interdisciplinary communication, their structure and functions

(design, coordination and formation of the system) are identified. The problem of systematic approach and interdisciplinary connections in the teaching of the science of Electrical Engineering and the basics of Electronics was developed by scientists of our republic, including K.G.Abidov, D.R.Kadirova, D.A.Tashmukhamedova, K.T.Alimkhadjayev, B.A.Abdullaev, M.I. It has been researched by ibadullaev et al.

The underdevelopment of the interdisciplinary relationship problem between science cycles in Institution of Higher Military Education is illustrated by the inadequacy of special studies devoted to this problem. It is possible to indicate a number of studies in this area, for example, in our country A. S. Safarov, K.G.Abidov, D. in the CIS states.D. Dondokov, V.N. Sapenko, N.I.Reznik, I.B.Nikolaeva, I.P.Makletsova, N.M.Bauer et al.

It cannot be denied that the current developing science and technology and natural and scientific directions are an important factor in the development of all spheres. Likewise, the military sphere is directly influenced by the development of society, the human factor and technological processes. It is important to develop their knowledge of the natural-scientific Sciences in order for their future officers to master such strategic directions as the management of military equipment.

In addition, on the basis of these disciplines, special attention is paid to the analytical approach of cadets, scientific and creative thinking and the formation of engineering potential. This process also serves to develop optimal solution selection skills in making important military decisions and to perfectly master management theory.

Therefore, at present, Institution of Higher Military Education require the development of methodological foundations for the study of general education (compulsory) subjects in didactic communication with special military disciplines .

All of the above determines the relevance of this work and the need for a deeper study of the problem of implementing interdisciplinary communication between science cycles at methodological, didactic and scientific-methodological levels in military educational institutions.

Since cross-topic communication is diverse in content, there is a need to classify them. As the basis of classification, most authors have studied various forms of interdisciplinary communication. All of the above determines the relevance of this work and the need for a deeper study of the problem of implementing interdisciplinary communication between science cycles at methodological, didactic and scientific-methodological levels in military educational institutions.

This is due to the fact that interdisciplinary communication was considered in different aspects - philosophical, psychological, general pedagogical, private, scientific, didactic.

Often, various methodological and didactic principles are manifested as tools and methods of ensuring interdisciplinary communication. This includes the content of individual training, the essence of scientific knowledge and the effective use of problem solving methods. This is due to the fact that interdisciplinary communication was considered in different aspects - philosophical, psychological, general pedagogical, private, scientific, didactic.



In Particular, D In ATMs.D.Dondokov studied the problem of carrying out interdisciplinary communications of the foundations of Electrical Engineering and electronics in the framework of a problematic-modular approach with general professional and special disciplines .

R.A.Akhmetgareyeva noted that in the system of training cadets in higher military educational institutions, more attention should be paid to integrative military practical issues, but in the research work a comparative analysis of the issues of interaction between the exact sciences and professional educational disciplines has not been studied.

N.M.Bauer's research work proposed a methodology for teaching an interdisciplinary related physics course in Institution of Higher Military Education according to Universal (Engineering), military-specific cycle study subjects. The researcher emphasized the effective development of personal qualities in future officers (such as thinking, knowledge, skills, interest in the study of physics) when important aspects of the methodology of solving a problem from physics, that is, an interdisciplinary connection is reflected in the content of the selected issue.

Problem solving from physics is an integral most important element of the learning process, which is significant in that it performs two functions: the purpose of teaching and the method of teaching. In relation to general secondary education, the issues posed in higher education are qualitatively different. At the same time, higher military education is considered important by the fact that by solving the physical issue in the teaching of military-Applied Physics in institutions, attention should be paid to aspects related to the military practical implementation of this topic.

V.E.Medvedev studied the didactic foundations of interdisciplinary connections in the training of specialists in research work .

Interdisciplinary connection in the educational process serves to effectively teach educational and specialist subjects and performs the following functions: methodological, constructive and psychological-didactic.

In Institution of Higher Military Education, the science of Electrical Engineering and electronics fundamentals is not considered a professional discipline, but serves to master professional disciplines perfectly.

Interdisciplinary integration should be focused on the following areas:

1. Assistance in the comprehensive maturation of cadets in the conditions of ensuring continuity of the educational process;
2. Ensuring that interdisciplinary connection plays an important role in shaping the logical and systematic thinking skills of cadets;
3. Implementation of interdisciplinary integration on the basis of basic scientific principles in the educational process and ensuring the systematicity, scientific justification and continuous connection of teaching with professional activities;
4. Harmonizing educational programs and creating the ground for the integration of knowledge by implementing interdisciplinary integration based on scientific concepts;
5. The implementation of interdisciplinary integration should be organized methodologically based on the principle of interdependence.

Modern technology and military production technology, as a rule, prevail over production in the civil sphere. Institution of Higher Military Education requires a graduate to know in depth the scientific foundations of military technical activity, their future specialization (military equipment). To achieve this goal, the general education (compulsory) subjects studied in Institution of Higher Military Education serve as the main support. Because, without these disciplines, a full-fledged understanding and implementation of the theoretical and practical aspects of military equipment creates complexity. The extreme complexity of modern military equipment significantly increases the role and importance of Higher Military Education.

The basics of Electrical Engineering and electronics are considered one of the main disciplines that form the basis of the development of modern production techniques and technology (including military). Therefore, it plays an important role in solving problems in the military-technical direction. One of the directions for solving electrotechnical problems of a military-technical nature is the implementation of interdisciplinary connections between science cycles in Institution of Higher Military Education.

It is known that "is the Union of parts and elements of the development process that are not identical to each other".

Integration is not only a process, but also the result of an integral, connected, unified and holistic creation. In the educational process, it consists in harmonizing the elements of different academic disciplines in a single direction, combining scientific concepts and methods of different disciplines in the formation of curricula, in-depth study of the foundations of science and mutual replenishment.

The integration of scientific knowledge is methodologically justified by the principles of dialectical materialism, the interdependence of forms, the forms of action of matter and their inextricable harmony, the general interrelationship of processes and phenomena with the harmonization of scientific knowledge. Therefore, scientific research and the harmonization of knowledge about nature and society are of significant scientific importance.

Generalization of knowledge in various scientific fields, the creation of models that reflect a single, holistic picture of an object, is carried out in recent times using interdisciplinary links that include general scientific concepts.

Thus, in the process of integration of knowledge, solutions of basic fundamental objects, scientific and socio-economic issues are carried out. The complexity of labor activity provides a solid basis for combining not only the harmonization of scientific knowledge, but also the formation and methods of human activities, actions and relationships.

Interdisciplinary communication equally affects all the main components of the educational process, including the following areas: systematic enrichment of the content of educational material; improvement of teaching methods and methods; use of effective tools in the educational process.

Approaches to the analysis of the concept of integration can be systemic or complex. It is absolutely correct to consider that one of the most successful ways is to apply a systematic approach to educational problems. It is impossible to limit the systematic approach to the learning process, only to revise its organizational forms or teaching methods. A different approach to the content of the preparation is needed. Of course, it requires a certain level of



restructuring of the structure of curricula, changes in the list and content of the subjects included in them.

Knowledge should play a fundamental role not only in revealing the causes of natural phenomena and the connection between them, but also in clearly demonstrating the connection between other technical and professional disciplines. A properly fixed link in its path fills one fan with the other, ensuring that they are in continuous contact with each other. When the interdisciplinary connection is not fully interconnected, the phenomena and realities of this period, during which the knowledge acquired by the cadet is developing, become helpless in front of him when confronted with practice. And vice versa, when the connection is sufficient, the materiality of the universe, the unity of phenomena, their inseparability, takes shape in the consciousness of the recipient of knowledge.

CONCLUSION

Many years of research and work experience, as a result of many years of research and work experience, the following methods and means of introducing the achievements of modern science in the educational process on the basis of interdisciplinary integration have been identified:

- highlighting the relationship of the phenomenon studied in the training of the basics of Electrical Engineering and electronics with the phenomena previously considered in other science classes;
 - reliance on knowledge previously mastered by cadets in other disciplines in the analysis of processes in the science of Electrical Engineering and electronics fundamentals;
 - solving issues based on the principle of interdisciplinary connection;
 - performing practical work of an interdisciplinary integration nature;
 - using electronic resource capabilities to search for achievements of modern science, create animated presentations and apply them in the educational process;
 - enriching the connection of the subject under study with general education and military-professional Sciences with the achievements of modern science;
 - the search for ways to organize modern scientific achievements included in the topics in an understandable form, taking into account the fundamental knowledge acquired by cadets in science;
 - understanding the essence of military equipment in modern modernization processes, the formation of clear ideas about its structure and principles of operation, as well as the development of a conscious and responsible approach to it.
- There is a need to form the scientific worldview of the cadets of institution of Higher Military Educations, to strengthen in their thinking the ideas about the materiality of the universe and the interrelationship of phenomena, and to deepen their professional knowledge. Therefore, the issue of integrated training of modern scientific achievements is one of the relevant areas, which serves to increase the effectiveness of the military-educational process, to inextricably link the fundamental and professional knowledge of cadets.



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