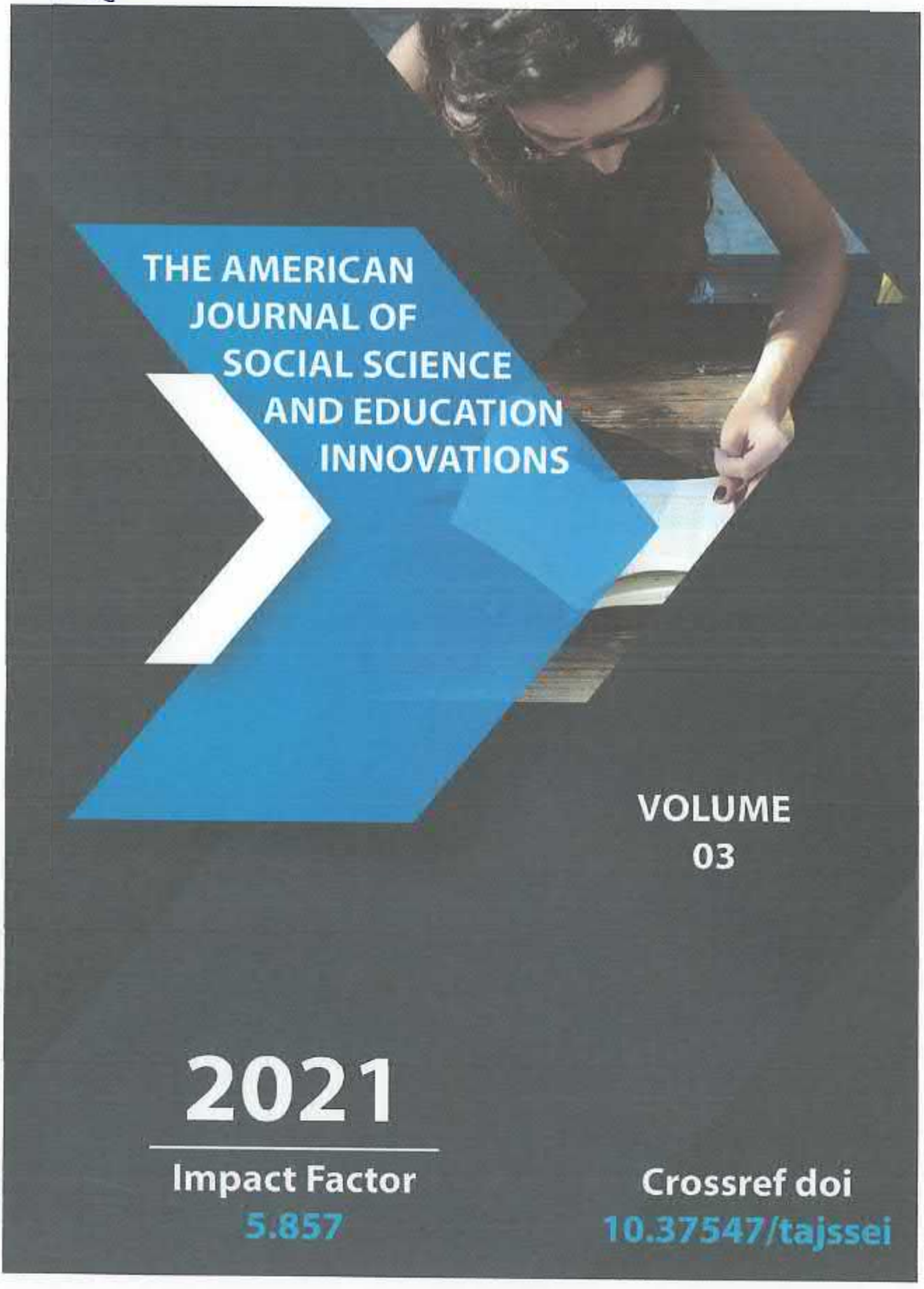

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# Modeling The Training Of Future Programmers For Design-Constructor Activities Based On Physics Training

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## ABSTRACT

This article presents the development of a methodological model of preparation for the design activity of a bachelor's degree in the specialty "Software Engineering" in the process of teaching physics. As a result of the analysis, scientifically based suggestions and recommendations were made on the identified problems and shortcomings in the teaching of physics and their elimination.

## KEYWORDS

Software tools, design, didactic, integrative, conceptual, methodological, component, value-semantic, motivational, cognitive, creative.

## INTRODUCTION

The level of professional training of a future specialist in higher education is determined by the breadth of his worldview, thorough knowledge of modern information and communication technologies, a high level of preparation for creative, practical and professional activities. In order to prepare a student for a high level of professional activity, he must have sufficient knowledge and professional skills in the field of mathematics and natural sciences, information technology [1]. That is, the student must be able to physically interpret a natural process, calculate mathematically and describe it virtually or graphically using software tools, visualize events and processes, have sufficient knowledge and practical skills to develop software products in programming languages.

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Methodological model and interrelated components of the development of preparation for design and engineering activities in the teaching of physics to undergraduate students of "Software Engineering" - the purpose and content of the physics course, the main stages of physics teaching methods and forms and means of teaching.

## MATERIALS AND METHODS

Today, there are the following problems and shortcomings in the teaching of physics to undergraduate students of "Software Engineering" [5]:

1. Incomplete development of didactic support for teaching physics to future programmers;
2. Lack of interdisciplinary integration in teaching physics to future programmers;
3. The conceptual methodical system model of teaching physics to future programmers and the methodological model based on it have not been developed;
4. Lack of methods for developing the professional training and professional competencies of future programmers on the basis of teaching physics.

Given these shortcomings, we will try to provide future programmers with a broader understanding of the methodology of teaching physics.

Шундай қилиб, физика ўқитиш асосида бўлажак дастурчиларни лойиҳавий-конструкторлик фаолиятга тайёрлаш методикаси биз томинимиздан ишлаб чиқилган методик моделдан тизимли ва самарали фойдаланиш орқали амалга оширилади.

It is necessary to formulate ways to implement each stage of the methodological model of preparing students for design activities. The developed methodological model includes purposeful, meaningful, process, control and value-semantic components [2].

## RESULT AND DISCUSSION

The target component is the formation of general professional competencies. That is, to be able to solve the problems of professional activity on the basis of theoretical and practical bases of mathematical natural-scientific, general and specialized disciplines, as well as the use of mathematical apparatus. The components of this competence are directly related to the application of physical knowledge. The main purpose of preparing students for design activities is to apply physical knowledge in the design and construction of complex software products.

The content component stages represent the design activities and the generalized ways of their implementation on the basis of physical knowledge:

1) Calculation of mechanical characteristics of the software product or its individual elements;

2) Calculation of physical characteristics of software constructions or its separate elements;

3) Ensuring the competitiveness of the software product.

To perform each operation of the developed methods, students must form a certain system of physical knowledge. It can be seen that the following sections of the physics course are required to complete the selected steps: knowledge of the physical foundations of mechanics, molecular physics and thermodynamics, the basics of optics and photometry. In addition, it is necessary to identify specific topics in which the actions of the developed methods of performing stages are formed, as well as specific elements of physical knowledge (concepts, laws, theories, etc.) [3].

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The process component includes the methodology of forming a method of performing each stage of design work at a certain level of generality among students. Hence, the content of the method of performing each stage in the audience is applied to a limited number of situations related to the professional activity of the future programmer, i.e. the degree of generalization is incomplete. In the future, the course project and the completion of graduate work will be at a maximum level, in which the graduate must master the design and engineering activities in relation to the development of any software product [4].

The process component of the methodological model includes individual components of general competence and teaching methods, forms and tools that allow to form a specific stage of design and construction activities in physics classes. These are: analytical report of specific professional situations, which allows to organize small groups, lecture-discussion, lecture-visualization, motivational stage for the formation of the activity under consideration. Design and construction tasks are used to organize the learning process, and the stages of design activities are carried out on the basis of independent work.

Students' awareness of the importance of the physics course in the formation of the components of general professional competence and the methods of carrying out the stages of activity (value-semantic component) for the design and construction of software products also play an important role. Students should develop tasks for the value-semantic component of programming that reflect all the physical phenomena and effects that must be taken into account when calculating specific structures. The control component of the methodical model of preparation of future programmers for design and construction activities on the basis of teaching physics includes: 6, 7]:

1. Control over the results of each action for the implementation of the design phase;
2. Control over the sequence of implementation of the stage of design and construction activities;
3. Control over the results of design and construction activities.

The methodical model of preparation of students of the bachelor's degree program "Software Engineering" for design and construction activities on the basis of teaching physics is shown in Figure 1 below.

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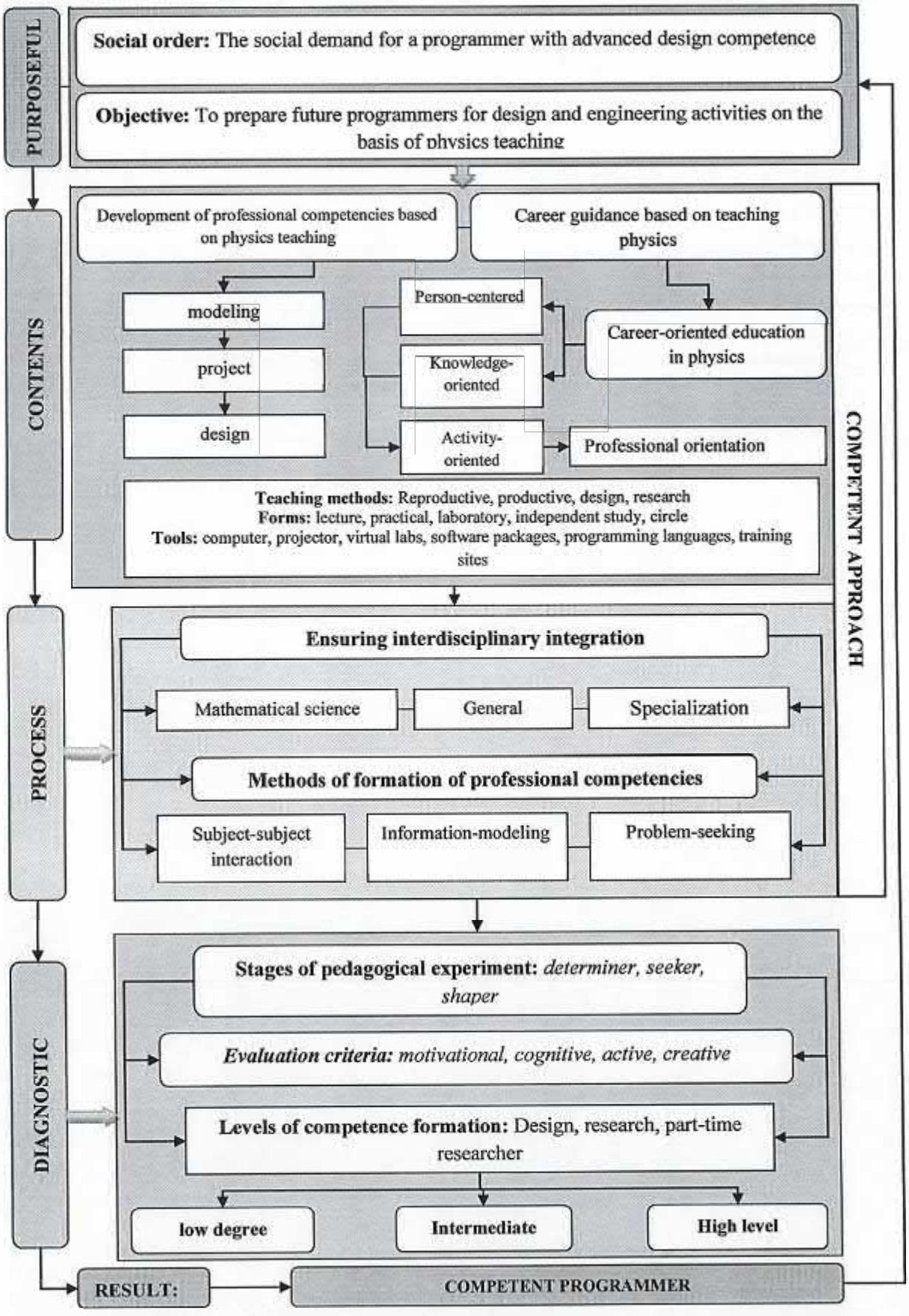


**Figure 1. Methodical model of preparation of future programmers for design and construction activities on the basis of teaching physics**

## CONCLUSION

In conclusion, it is expedient to implement the methodology of preparing future programmers for design and construction activities on the basis of teaching physics through the systematic and effective use of the above methodological model.

## REFERENCES

1. Voznesenskaya N.V. Teaching physics to students of engineering specialties using modern computer technologies // Integration of education. - Moscow. 2006.-№4. - 59-67 p.
2. Soboleva V.V. Formation of design activities for bachelors of the direction of training "Construction" when studying a physics course at a technical university. - Astrakhan. 2019. - 118 p.
3. Maslennikova, L.V. The relationship between fundamentality and professional orientation in physics training of students of engineering universities: Dis. ... doctor ped. Sciences: 13.00.02 / Maslennikova Lyudmila Vasilievna. - Saransk, 2001 - 398 p.
4. Ryskulova, MN Methodology of course design based on the integration of general technical and special disciplines: Dis. ... Cand. ped. Sciences: 13.00.02 / Ryskulova Marina Nikolaevna. - Nizhny Novgorod, 2004 .– 232 p.
5. To'raev S.J. Improving the methodology of preparing students for professional activities on the basis of software. Dissertation PhD: 13.00.05. - Tashkent. 2019. - 183 p.
6. Turaev S.J. Improving the quality of professional activities of students with the involvement of a scientific project. "Innovations in technology and education", March 21-22, 2019, Branch of KuzSTU in Belovo. - Belovo: 2019. - Ch. 4. -240-241 p.
7. Turaev S.J. (2019) "Methods of the using of software program Microsoft Excel in practical and laboratory occupation on physics" Scientific Bulletin of Namangan State University: Vol. 1 : Iss. 10 , Article 55. –P. 292-297.

A Young School Age. *The American Journal of Social Science and Education Innovations*, *3*(04), 658-663.

108. Xayitova Zilola Muhammadjanovna, (2021). Psychological Characteristics Of Emotional Intelligence Formation In Small School Age. *The American Journal of Social Science and Education Innovations*, *3*(04), 664-669.

109. Sabitova Kamola Furqatovna, Tokhtayeva Fazilat Shavkat qizi, Abduxalilova Dilfuza Maxsutaliyevna, (2021). Criteria For Assessing The Basic Competences Of The Modern Teacher. *The American Journal of Social Science and Education Innovations*, *3*(04), 670-675.

110. Halima Kadirova, (2021). The Place Of Karakalpak Ethnoculture In The Integration Of Society. *The American Journal of Social Science and Education Innovations*, *3*(04), 676-688.

111. Mirzanazarova Vazira Akbaraliyevna, Alimova E'zozxon Ne'matullayevna, Rahmonova Dildora Abdulxamid Qizi, Karimova Sadoqat Abduxamidovna, (2021). Using Videos And Multimedia In Teaching Foreign Languages For Slow Learners. *The American Journal of Social Science and Education Innovations*, *3*(04), 689-694.

112. Karimova Yulduz Malikovna, Uzokov Bahodir Hamidullayevich, Khojamova Naima Abdurashitovna, Zoirova Tabarruk Abdugafforovna, (2021). Foreign Language Teaching Methods. *The American Journal of Social Science and Education Innovations*, *3*(04), 695-700.

113. Ergasheva Sayyora Habibullayevna, To'rayeva Komila Tohirjanovna, Maxsutkhodjayev Muzaffar Mutalifovich, Nosirova Odina Dilshodbek Qizi, (2021). Pedagogy Technologies In Foreign Language Teaching. *The American Journal of Social Science and Education Innovations*, *3*(04), 701-707.

114. Abdurahmonov Hasan Ibrohimovich, (2021). Specific Aspects Of The Formation Of An Individual's Ability To Innovate In The Process Of Education. *The American Journal of Social Science and Education Innovations*, *3*(04), 708-716.

115. Valieva N.A., (2021). Activity Of The Office Of Muslims Of Uzbekistan.... *The American Journal of Social Science and Education Innovations*, *3*(04), 717-720.

116. Rasulov Inom Muydinovich, (2021). Problems And Solutions Of Teaching In Credit-Module System In Higher Education Institutions. *The American Journal of Social Science and Education Innovations*, *3*(04), 721-727.

117. Akbar Saitkasimov, (2021). Innovation And Social Development. *The American Journal of Social Science and Education Innovations*, *3*(04), 728-735.

118. Odilov Yorkin Juraevich, (2021). Modeling The Training Of Future Programmers For Design-Constructor Activities Based On Physics Training. *The American Journal of Social Science and Education Innovations*, *3*(04), 736-740.