

A MODEL FOR THE FORMATION OF PROFESSIONAL COMPETENCE OF SPECIALISTS IN ENERGY AND POWER SUPPLY IN THE FIELD OF INFORMATION TECHNOLOGY BASED ON DESIGN AND CREATIVE TRAINING.

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Abstract: The project-creative teaching methodology is to be able to easily and quickly adapt to professional conditions, be flexible and creative in choosing methods, techniques and means for solving emerging problems in the field of the energy sector, methods and forms of controlling the management of power plants, selecting the necessary material and tools for emergencies, know the meteorological aspects and be able to manage security at the enterprises of the energy sector in the field of telecommunications..

Keywords: project-based learning, project-based learning methodology, organization of vocational education, strategy, professional competence.

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Statement of the problem and relevance of the study: The training of future specialists in the field of energy supply based on the Tashkent University of Information Technologies is a complex and multi-vector process. The model of professional competence of specialists in energy and electricity supply in the field of information technology, as a complex deformation of a professional personality, covers a variety of basic and professional competencies, including knowledge, skills and abilities, ability and readiness for professional activity and activity, as well as professionally significant personality traits[3].

A future specialist in the field of energy supply should be able to easily and quickly adapt to professional conditions, be flexible and creative in choosing methods, techniques and means for solving emerging problems in the field of the energy sector, methods and forms of controlling the management of power plants, selecting the necessary material and tools in case of emergencies. situations, know the meteorological aspects and be able to manage security at the enterprises of the energy sector in the field of telecommunications. All these components make up the content of professional competence, which is a key model in the training of future power engineers because most work precisely at enterprises in frequent emergencies.

In order to form the listed practical skills and qualities of a future specialist, that is, their practical competence, it is necessary to organize the training process in

such a way that it fully covers the real conditions of practical activity, reflecting all the nuances of production. Consequently, the need for highly qualified teachers who can effectively carry out the learning process, as well as the lack of research into the problem of forming professional competence, determine the relevance of this publication [7].

Formulation of the problem: Given that the Tashkent University of Information Technologies trains personnel for all telecommunications enterprises in the country, it is called upon to solve the problem of improving the traditional model of training specialists in this field. One of the ways to increase the efficiency of personnel training is based on the introduction of a practice-creative-oriented training model [6].

The result of interaction in training can be expressed in the mutual interest of the enterprise and the university in training specialists who meet the requirements of high-tech production. For example, JSC "Uzbektelecom" is an enterprise with a modern production base that uses complex science-intensive technologies, including electronics, robotics, complex hardware and software.

The practical implementation of the project-creative teaching methodology in the interaction of TUIT with JSC "Uzbektelecom" will entail certain difficulties, which are associated with the lack of practical training in real production conditions.

Research objectives: To solve this problem, it is recommended to combine traditional teaching methods with the professional competencies of students based on the use of both project-oriented learning and creative methodological learning. As a result of such a hybrid of teaching methods, a project-creative methodology is implemented, which involves enhanced improvement of the acquired knowledge. When introducing a project-creative-oriented methodology, we can create conditions for identifying and solving shortcomings. Firstly, the project approach considers innovation activity as a complex system of interdependent and interrelated activities in terms of resources, deadlines and performers aimed at achieving specific goals (tasks) [3]. Secondly, the project is a special form of cluster interaction,

An integral part of modern education is that the whole process should be focused on the development of the student's personality, i.e. training should be focused not so much on the entire stream as a whole, but on each individual student. In other words, learning should be student-centred [1]. At the same time, the goal is not to raise the level of lagging students to the level of gifted ones, but to reveal the individuality and optimally develop the characteristics of each student, regardless of whether he is considered "strong" or "weak".

Main part: The learning process should be built on the principle of complete interaction, authoritarianism in relationships is excluded. The ultimate goal is to direct and give impetus to the development of education, the formation of the ability to independently acquire knowledge, and gain the competencies necessary to obtain a general picture in the direction of education. Students in such training are a source of activity - the subject of training.

A distinctive feature of project-creative learning is that the teacher not only informs students of the conclusions of science but also, if possible, leads them to discovery, making them accomplices of scientific research by creating problem situations as a result of solving which the student gains the necessary competencies by creating his own project, collecting his own knowledge. Thus, knowledge is not provided in finished form - it must be obtained (activity approach) [2]. In the learning process, control does not come from outside, the skills of self-control (internal control), and personal reflection are formed. Thus, the analysis of developing systems and principles of traditional education showed that the project-creative system of education differs qualitatively from the traditional one by including all students in active mental activity, the presence of attention to each student,

Thus, the strategic goal of project-oriented creative learning involves improving the model of training specialists of all levels on the basis of practice-oriented creative learning [4]. Moreover, one of the tactical goals of project-creative-oriented education is the high-quality mastery of professional and general competencies by students in the speciality, in accordance with the requirements that communication enterprises impose on future graduates, as well as the system of competencies of enterprise employees at partner enterprises.

The construction of project activities for students consists of the following tasks: training in planning, competent goal setting, and presentation of the stages of creating a project to achieve a result; the ability to compose and research information; the ability to reproduce the project using three-dimensional and graphic methods; the ability to compose an explanatory and theoretical part for the project; the ability to publicly present and defend the project; positively characterize design and research activities.

At the same time, it is assumed that the student will master several working competencies. Accordingly, the curriculum for training in a speciality may already include professional modules that involve the development of technologies for performing work with broadly formed knowledge in the chosen field of study and involves working on high-tech equipment that requires special professional training.

Familiarization of students with the implementation of certain and experimental intended research together with the teacher contributes to the formation of an emotional situation that activates the creative possibilities of students. Project work leads to an increase in the amount of knowledge used in the design, the formation of high-class abilities and skills, and an increase in the student's responsibility for the assigned task. It should be understood that this type of activity acts as a reproductive work and allows you to master the used material, working out the design technique with the goal of reincarnating their presence in the future repeated renewal into the automatic experience. The result of training, in accordance with these goals,

The classical model of project-creative education provides for the development of practical activities in the profession being prepared on the basis of a partner enterprise [2]. Accordingly, in relation to the training of students on the basis of the enterprise JSC "Uzbektelecom" within the framework of a professional module, such a training model will imply close interaction with the realities in production. At the same time, the theoretical part is studied on the basis of the university, but under the guidance of an enterprise specialist, and all practical classes are conducted on the basis of the enterprise. Accordingly, the learning process is focused on the system of competencies of the employees of the enterprise.

In coordinating these factors at the levels of officials, i.e. universities (in the implementation of the project-creative teaching methodology) and enterprises (introduction of dual interaction), we will be able to see how students more successfully adapt to the conditions of the enterprise, receive in-depth knowledge, skills and practical experience in a modern and sought-after working profession, which, in turn, it contributes to their obtaining higher qualifications, real results of improving the quality of education of university graduates [3].

The effectiveness of the project-creative methodology will be manifested in the degree of achievement of the goals set, and the completeness of the circle of training. Moreover, for students - information content, functionality, scalability, portability and reliability of obtaining competencies.

The teacher's help in project-creative technology is connected, first of all, with the creation of didactic and psychological conditions for the emergence and development of the very need for self-education in students, the desire for activity and independence in this process, and in working with students, the role of organizing joint productive activity of the teacher is great and students [4].

The teacher creates such a learning environment that determines the structure and logic of intellectual relations and communication, offers flexible and variant programs with a single line of scientific knowledge, practical tasks for comparison and self-knowledge, experimental work, solving problems of a new class,

comparing different points of view on one and the same phenomenon. The problem often lies in the fact that teachers often practically do not include independent work in the system of student learning. Teachers do not make efforts to ensure that students master the elementary skills of independent cognitive activity, assess the level of cognitive activity of students as insufficient, and, based on this, do not try to introduce effective, modern teaching methods through independent work. using the traditional, stereotypical, mostly verbal way of teaching in the formation of students' knowledge and skills, they, in turn, determine a further decrease in students' cognitive initiative. thus, the pedagogical interaction "teacher-student" becomes ineffective [7].

A common opinion should be developed that in order to eventually get an excellent specialist at the exit from a higher institution, not only the teacher and the improvement of the work of the entire university are applied, but a priori the attitude of the student towards higher education has been developed. No changes in the structure of the university, and no new technologies will produce the desired effect until applicants going to a higher educational institution have a certain set of knowledge and competencies, as well as a certain set of requirements[5]. Without these requirements, it is impossible to introduce any innovations in the field of higher education. Accordingly, it is necessary to make changes in parallel in all spheres and directions of education, starting from secondary education and gradually introducing it into all areas. As a result, at the output, we will get a specialist, the ability to apply the methods of mathematical analysis and modelling, theoretical and experimental research; the ability to use knowledge about modern physical processes in equipment; the ability to acquire new knowledge using modern educational and information technologies; the ability to understand the essence and significance of information in the development of the modern information society, to be aware of the dangers and threats that arise in this process, to comply with the basic requirements of information security; possession of the main methods, ways and means of obtaining, storing and processing information, has the skills to work with a computer as a means of information management; knowledge of automated database management systems; mastery of the basic methods of organizing the life safety of production personnel and the population, their protection from the possible consequences of accidents, catastrophes, and natural disasters; the ability to use the skills of conducting a measurement experiment and evaluating its results based on knowledge of the methods of standardization and certification metrology; the ability to apply modern software tools for the development of design and technological documentation; the ability to apply knowledge in the field of electrical engineering and electronics for the development and implementation of technological

processes, technological equipment and technological equipment, automation and mechanization; possession of methods for evaluating properties and methods for selecting materials; possession of the basics of calculation and design of elements and devices of various physical principles of operation; possession of the main methods, methods and means of planning and implementing industrial safety; the ability to use normative documents on quality, standardization, certification and rules of technical operation, maintenance, repair and production of power supply systems; use technical means to diagnose the technical condition of systems; use elements of economic analysis in practice; the ability to develop and use regulatory and technical documents to control the quality of maintenance and repair of power supply systems, and their modernization, assess the impact of product quality on the safety of power supply, analyze the state of power supply security; possession of regulatory documents for the repair and maintenance of power supply systems; ways of efficient use of materials and equipment in the maintenance and repair of power supply systems; possession of modern methods and methods for detecting malfunctions in operation, determining the quality of maintenance of power supply systems; possession of methods for calculating quality indicators; the ability to develop and use methods for calculating the reliability of equipment in professional activities; justify the adoption of a specific technical solution in the development of technological processes for the production, operation, maintenance and repair of power supply systems; carry out an examination of technical documentation [4].

Conclusions: Identification and creation of a unique system of coverage of competencies to the maximum for mastering the subject "Power supply in information technologies", for the completeness of the creation and formation of all indicators, a system is considered fundamental for the creation of a unique project-creative methodology that allows you to build training in the form of formed actions, clearly evaluate and control the order of achieving the goal [3].

It should also be noted that the internal processes taking place in the minds of students, perhaps the peculiarities of the nature of the perception of knowledge, which reflects spectacular goals, are not always clearly amenable to their description. This makes the picture not entirely clear and causes certain difficulties in setting goals.

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