Pedagogical Design of the Content of Professional Training of Teachers of General Technical Disciplines and Methods of Teaching Technology

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Abstract: *Professional training of masters in higher education institutions, its effectiveness is largely determined by the level of pedagogical design of the training content of future teachers of general technical disciplines and teaching methods of technology, since it is the content that is designed to ensure the formation of a personality that has not only a system of special knowledge and professional actions, but also differs in formation professionally important competencies, the appropriate level of qualifications, taking into account world and European quality standards while maintaining national achievements and priorities, as well as capable of fruitful teaching activities in modern conditions. According to the results of the study it can be stated: when designing the content of training masters of technological education it is necessary to take into account the general principles of building the content of education and the principles of updating the content of training to the requirements of time; designing the content component of integrated modules of psychological-pedagogical and special-subject training involves determining their goals and objectives, selection of innovative content for each topic of the content module, selection of forms, methods and technologies of its implementation, determination of evaluation criteria and system of diagnostics of success of undergraduates; the content component of professional training of masters of technological education must contain knowledge and experience of innovative psychological-pedagogical and technical-technological activity of a teacher in the system of higher educational institution; the effectiveness of the content of professional training of future teachers of general technical disciplines and methods of teaching technology is determined by the effectiveness of professional activity, which can be characterized as the formation of professional and pedagogical competence, ability to professional and pedagogical self-development and self-improvement.*

Keywords: *master's degree training; higher education institutions; personality formation; professional competencies; self-development and self-improvement; content effectiveness.*

Introduction

The process of training specialists at the educational and qualification level "master" is considered as a pedagogical system consisting of a set of interconnected components and reflects the integrity of training, which is organized in accordance with the "Regulations on the organization of the educational process in higher education institutions" Ministry of Education of Ukraine of June 2, 1993 № 161. (1993). According to the provision, the organization of the educational process at the educational and qualification level "master" has certain features, namely:

- study time set aside for independent work must be not less than 1/2 and not more than 2/3 of the total amount of time determined by the master's program;

- up to 20 percent of the total study time provided by the program can be spent on conducting individual classes;

- qualification work of the master, which is performed during the master's study, should include research (creative development) on the problems of the relevant field;

- state certification is carried out by the state examination commission and is conducted in the form of defense of the master's qualification work, while the state commission must submit materials characterizing the scientific (creative) and practical value of the work - printed articles, methodological developments, etc.;

- the responsibility for the individual curriculum relies on student;

- the head once a semester reports to the department meeting on the implementation of the individual plan by each student, studies according to the "Master" program;

- a student who fails to complete the individual curriculum in time is expelled from the university, and he is issued a standard academic certificate;

- a student who has fulfilled all the requirements of the curriculum for master's degree and successfully passed the state final certification, the decision of the state examination commission is assigned according to the chosen specialty qualification and issued a state document on the educational qualification level "master" and full higher education;

- a student who has received a standard document on the obtained educational and qualification level "master" and full higher education, is employed in accordance with applicable law, he may be given the opportunity for scientific internship (scientific work) abroad;

- a student who received a final grade of "excellent" in at least 75% of all disciplines, and other grades of "good" (including grades during

training in educational and professional programs "bachelor" ("specialist"), defended his master's thesis with a grade of "excellent", a document of complete higher education with honors is issued;

- taking into account educational and scientific (creative) achievements, the master may be given a recommendation by the faculty council for postgraduate studies, etc. Law of Ukraine of June 2, 1993 № 161. (1993).

The problem of pedagogical design of the content of education, its reforming on humanistic, personality-oriented principles has found a deep scientific and theoretical substantiation in the researches of S. Bondar (2003), V. Kraevsky (2000), Dohmen G. (1998), Onishchuk (2020), Maksymchuk (2020) and others. Analysis of these sources shows that the pedagogical system includes organizational and pedagogical support, design of training content, teaching methods and tools, forms of organization of the educational process, research, independent, individual and practical activities (Espenbeck, 1999; Reston, 1996; McCaslin, 2002; Sheremet, 2019; Gerasymova, 2019).

Information components of training, which are components of organizational and pedagogical support, make up an educational and professional training program, a structural and logical training scheme, a curriculum, curricula of disciplines, other regulatory acts of public administration bodies of education and a higher educational institution and are reflected in the corresponding textbooks, educational manuals, teaching materials, didactic tools, as well as during training sessions and other types of educational activities, the essence of which is described in more detail in our publications, Yashchuk S.M. (2015) Schelten A. (1985), Sysojewa S. (2010), Soren P. Nielsen (2002), Terhart E. (2003), .

Professional training of masters in higher pedagogical institutions of Ukraine, its effectiveness is largely determined by the level of pedagogical design of the training content of future teachers of general technical disciplines and methods of teaching technologies, since it is the content that is designed to ensure the formation of a personality that has not only a system of special knowledge and professional actions, but also differs the formation of professionally important competencies, the appropriate level of qualifications, taking into account world and European quality standards while maintaining national achievements and priorities, as well as capable of fruitful teaching activities in modern conditions, Wilensky H. I. (1964), Yashchuk S. (2015), Yashchuk S. (2014), Nerubasska (2020), Melnyk (2019).

Designing pedagogical activity and its individual components as one of the most important types of professional activity of a teacher

To determine the content of professional training of masters of technological education through pedagogical design, it is necessary to clarify the interpretation of the concepts of "pedagogical design" and "content of education".

In the dictionary "Scientific and technological progress" (1987) design is defined as "closely related to science and engineering activities to create a project, formed within the activities of manufacturing new products, machines and mechanisms."

The concept of "designing" comes from the verb "design". To design is to compose, develop a project, construct something, plan, plan to accomplish something Great Explanatory Dictionary of the Modern Ukrainian Language (2001).

A project is a component of design, which is considered as the creation of a project (prototype) of the proposed or possible object, state, or as a process during which the product (service) is created and manufactured. Thus, the design in the general sense should be understood as a scientifically sound design of the system of parameters of the future object or a qualitatively new state of the existing prototype project, a prototype of the proposed or possible object, state or process in unity with ways to achieve it.

Considering the design process in a broad sense as a multifaceted idea, G. Muravyova (2002) identifies its main aspects, namely: activities to transform natural phenomena into artificial objects and processes that meet human needs; the process of creating an idea of an object that does not yet exist; choice of mode of action, preparatory actions; a component of human life that allows him to rationally build his life and perform various necessary activities; human attitude to reality, which reflects the desire for a comfortable existence.

The introduction of the concept of "design" in the educational sphere, its adaptation to the conditions of the new environment, the natural transformation into the concept of "pedagogical design" is associated with the solution of a number of educational problems. This is due to the expansion of the terminological apparatus, the need to rethink ideas about certain categories, their ratios.

Thus, V. Kraevsky (1972, p. 6) noted that the scientific status of pedagogy is manifested in the fact that "... it is a branch of activity in which, firstly, the functions of studying the process of teaching and upbringing are combined in a real process, secondly, the functions of creating (designing)

training and education systems." In the psychological and pedagogical sense, the concept of design has recently acquired significant relevance and new content in connection with the development of the problem of designing educational systems V. Slobodchikov (1997), I. Yakimanska (1996). This area also emphasizes the transformative function of design in relation to the existing level of knowledge. N. Talyzina (1986) points out that "projects act as additions and transformations; they are aimed at changing the current state of affairs. In terms of design, it acts as a transformation of existing objects into a new form. "It represents the position according to which design is the driving mechanism of developmental learning: "the subject of design is the creation of conditions (tools, mechanisms) for the development of the education system as a whole, the transition from one state to another" N. Talyzina (1986).

An important object of pedagogical design is the content of education, which is pedagogical systems, pedagogical processes, pedagogical situations, which are implemented in stages - from a general idea to specific actions.

All this indicates that the design of pedagogical activities and its individual components is one of the most important types of professional activity of a teacher. For example, S. Goncharenko (2000), among the most persistent components in the structure of pedagogical activity, distinguish the design branch. Moreover, S. Goncharenko (2000) rightly notes that "the leading activity in accordance with human nature is transforming (design and practical) activities".

We agree with the opinion of V. Yagupov (2012), who notes that the content of the concept of "pedagogical design" is characterized by two points:

– the ideal nature of mental actions aimed at the goals, content, methods, forms, means and results of pedagogical activities;

– the focus of pedagogical design on the formation of something in the future in the educational process of the educational institution V. Yagupov (2012).

Pedagogical design, according to V. Yagupov (2012), is the creation of specific images of the future, specific details of the developed pedagogical programs. Its content provides:

- designing or creating projects is a preliminary mental activity of a teacher regarding the organization of his pedagogical activity and the activity of students;

- its characteristic properties are the ideal nature of action and its focus on the formation of something in the future in the educational

process;

- pedagogical design is associated with the problematic organization of thinking and activities of teachers and students.

V. Bezrukova (1996) defines pedagogical design as "preliminary development of the main details of future activities of students and teachers." The researcher's opinion is impressive, where she emphasizes that pedagogical design is a function of any teacher, no less important than organizational, gnostic or communicative.

In general, the scheme of the pedagogical project includes the following components: identification of problems by their common features based on the analysis of information about the environment; fixation of level parameters of results and their comparison with forms of work; formation of a preliminary diagnostic hypothesis on the basis of primary classification and processing of the received information; identification of external and internal causes of problems and deviations; determination of the final result and its final interpretation, Kobernyk O.M. (1995).

Thus, it can be argued that pedagogical design is an intellectual and prognostic activity of the teacher, which consists in the implementation of pedagogical ideas through a system of approaches and principles that provide for the development of materials between the teacher and the student.

Analysis of the possibilities of applying the basics of pedagogical design in substantiating the content of education training

Having clarified the content of the categories "design" and "pedagogical design", we will focus on the analysis of the possibilities of applying the basics of pedagogical design in substantiating the content of education training.

In the "Regulations on educational and qualification levels (degree education)" (Resolution of the Cabinet of Ministers of Ukraine of January 20, 1998 № 65): "The content of education is due to the goals and needs of society requirements for the system of knowledge, skills, worldview and social and professional qualities of the future specialist, which is formed in the learning process taking into account the prospects of science, technics, technology and culture."

Scientists understand the content of education:

- system of scientific knowledge, skills and abilities, as a result of their mastering the comprehensive development of the personality, formation of its worldview, morals and behavior, preparation for a public

life, work is provided Yu. Babansky (1988);

- system of knowledge about the world around us, modern production, culture and art, these are generalized intellectual and theoretical skills, skills of creative solution of practical and theoretical problems;

- system of scientific knowledge about nature, society, human thinking, practical skills and ways of activity, experience, creative activity, worldview, moral, aesthetic ideas and appropriate behavior that a student should have during training S. Goncharenko (2000);

- system of knowledge, skills, abilities that must be possessed by those who study during the study period, in order to obtain a certain profession at the level of a specialist of higher qualification I. Drozdova (2008).

This understanding of the content of education is based on a cognitive approach, the conceptual educational purpose of which is to involve the individual in science and industry.

According to O. Savchenko (1997), the content of education is a historical category, a kind of model of society's requirements for preparing human generations for life. The content of education can be interpreted as a pedagogical category, as it is almost impossible to formulate it only on the basis of the social order of society. The way out of this situation is in pedagogical interpretation, in creating a model of this social order by means of pedagogy Savchenko (1997). Kraevsky (1972) emphasizes this in his research: the content of education can be defined as a pedagogical model of the social order, which is aimed at education, which lies in the context of the culturological approach.

According to Kobernyk (1995), the content of vocational education in higher pedagogical education is defined as a complex integrated education, structured as a system of theoretical knowledge, pedagogical skills, experience of research in the professional sphere, as well as a set of personal values and professional orientation.

We agree with the opinion of scientists that the content of education is not a constant value, it must constantly change and depends on the level of development of science and technology, socio-economic and cultural state of society, taking into account the needs of educational training and prospects for the state as a whole. The opinion of Kremen (2010) also convinces in this:

"The content of education itself needs to be changed. It is necessary to more clearly and unambiguously define the fundamental knowledge in various fields of study of man and the world, to separate them from the excessive information component, which should play the role of illustrative

support of the cognitive process. Taking into account anthropocentric tendencies, it is necessary, without reducing the possibilities of cognition of nature and the world, to provide a greater opportunity for cognition of man, his psychophysiological and vital features, for individual self-knowledge. It is also necessary to work out a mechanism for systematic updating of the content of education, in accordance with the development of science and the acquisition of new knowledge by mankind. The content of education should reflect all the richness of rational knowledge of mankind, in particular in the spiritual sphere" (Kremen, 2010).

As Goncharenko (1997) rightly noted, the change in the structure of the theoretical component of the content of education is influenced by objective needs (the needs of society, the development of science and technology, accompanied by the emergence of new ideas, theories and radical changes in technique and technology) subjective factors (policy of the leading forces of society and methodological positions of scientists).

Batechko (2012) notes that the training of specialists in the conditions of master's degree without objections should take into account these trends, as the main purpose of training – providing a qualitatively new higher education, which requires not only "a fundamental rethinking of the content aspects and a real revision of scientific and educational paradigms, but also the use of leading technologies of the modern educational process, the substantiation of which is based at the bachelor's level, as the first degree in the training of specialists and masters. "It follows that in the curricula of training specialists it is impossible to make a simple division of disciplines, but it is necessary to form cycles of disciplines and the order of their study to ensure the proper quality of professional training of masters. The problem of selecting the content of education is one of the most important in pedagogical science.

We share the opinion that considers the content of professional and pedagogical training of a high school teacher in a master's degree as a comprehensive program that synthesizes and integrates all cycles of disciplines, the basis of which is a program-targeted method of planning and managing the learning process.

So, to design the content of education - means to establish the relationship and continuity between the individual cycles of disciplines, to find their correct relationship, which allows in the shortest possible time to pass the necessary scientific information to students. These tasks are performed through curricula and programs.

We will proceed from the fact that the modern content of training future teachers of general technical disciplines and methods of teaching

technology should contain the following components:

- system of scientific and technical knowledge about the essence, structure and technology of innovative professional activity of a higher school teacher; development of innovation processes in higher education and the specifics of educational and pedagogical innovations;

- system of professionally oriented and special skills for the introduction of pedagogical innovations based on the design of pedagogical activities;

- experience of creative activity on generation and realization of own innovative ideas in the educational environment of higher education institution (HEI);

- experience of pedagogical reflection, mastering the methods of self-improvement;

- experience of value attitude to pedagogical activity in HEI.

When designing curricula, two problems arise: first, the selection of disciplines for study; secondly, the sequence of their distribution over the years of study. These problems should be solved on the basis of the following principles Yashchuk (2015):

1) comprehensive harmonious development of personality with the help of subjects (system of subjects: social - general - special).

2) the optimal ratio of fundamental and special disciplines.

3) taking into account interdisciplinary links.

4) variation in the training of a specialist depending on the characteristics of the educational institution and the interests of students (compulsory - alternative - optional disciplines).

5) coordination of the amount of educational information with the time budget of students.

As noted by Sysoyeva (2010), the model of teacher training should not distinguish between invariant and variable learning modules, as the requirement of flexibility of such a model should provide the selection of learning modules by the teacher depending on the input level of his needs (which can be done through questionnaires, testing, interviews, etc.). The researcher notes that training modules should provide an opportunity:

1.   Replenishment of knowledge in the scientific field, which is displayed by the teaching subject; replenishment of knowledge in pedagogy and psychology, modern educational innovations, pedagogical learning technologies.

2.   Improving the methodological and methodic culture of the teacher, the formation and development of methodological knowledge on modern forms of organization of the educational process in higher

education, including distance learning.

3. Improving the level of information culture, development of practical skills in working with computers, network technologies, the Internet.

4. Development of professionally significant qualities of a teacher as an educator. Each teacher must master the methods of self-diagnosis and the most important for reflection skills, practical methods of professional and creative self-development and, as a result, develop an individual trajectory to change their own style of teaching according to their psychophysical capabilities, abilities, values, requirements of HEI environment.

5. Development of communication skills, ability to communicate. For the development of communicative abilities of a higher school teacher requires both knowledge of psychology, pedagogy, and constant study of sociological data concerning the features of socialization and value orientations of modern youth.

6. Preparation of a high school teacher for innovative activities. It is important to acquaint a high school teacher with the basics of innovation in higher education; problems of innovation management; directions of innovative activity of the teacher in the system of innovative development of the higher educational institution; professional and pedagogical training of a HEI teacher in the conditions of innovative processes; problems of personal and professional self-development of a teacher as a condition of his ability to innovate; implementation of innovations in education on the basis of innovative design of pedagogical activity.

7. Acquaintance with the modern normative-legal base of higher education (Sysoyeva, 2010).

According to Machynska (2013), when selecting and structuring the content of training future teachers of higher education, it is necessary to take into account the following aspects: a) the worldview value of the subject, makes it possible to understand the laws of social and natural development, to analyze social phenomena and innovation processes; b) the cognitive value of the subject, its possibilities for the development of the worldview of the future teacher, gives interesting, necessary knowledge, stimulates the development of the cognitive activity of each person; c) the social significance of the subject, its role in the scientific, social, cultural and economic life of the country; d) the practical significance of the subject for each student (connection with a certain profession, the ability to master useful skills and abilities); e) ease of mastering the subject in which the

student is interested; f) the quality of teaching the specified subject.

General requirements for pedagogical design of the content of education for the training of future teachers of general technical disciplines and methods of teaching technology

Based on the analysis of scientific sources on the content of vocational education, we can formulate general requirements for pedagogical design of the content of education, training of future teachers of general technical disciplines and methods of teaching technology:

1. When designing the content of training masters of technological education it is necessary to take into account both the general principles of construction of the content of education, and general didactic principles and principles of updating the content of professional training.

2. Pedagogical design of the content of education for the training of masters of technological education should reveal the features and directions of professional activity of the teacher in the system of innovative development of higher education; the specifics of professional and pedagogical training for this type of activity in the educational environment of the university.

3. The content of training future teachers of general technical disciplines and methods of teaching technologies should correspond to the goals of the chosen education model, reflect current trends in the scientific and technological development of the state, the main directions of innovative processes in technological education, features of educational innovations and pedagogical technologies in higher education.

4. The content component in pedagogical design should reflect the experience of applying the acquired knowledge in practice of future teachers of general technical disciplines and methods of teaching technology for the introduction of new educational and scientific and technical technologies.

5. When structuring the content of training masters of technological education it is necessary to provide for the development of innovative engineering and pedagogical style of thinking, to ensure personal and professional self-development of the future teacher.

Based on the results of this work, the structure and content of professional training of a teacher of general technical disciplines and methods of technology training have been developed, which has a block-modular structure and includes three blocks that provide theoretical, practical and research training.

The process of pedagogical design of the content of vocational

training is flexible and dynamic, as the amount of new knowledge (information) from all sciences on average doubles in 3 - 6 years. That is why it is so important when designing the content of education to choose from a large amount of information that will be the basis for becoming a professional in terms of prospects for his future activities.

Having analyzed the content of modern scientific and methodological literature, based on the requirements of the industry standard of higher education, educational and qualification characteristics and educational and professional training program for masters of the specialty "Pedagogy of Higher Education" and taking into account the need of higher domestic education in the preparation of masters of technological education, we have designed a curriculum for training masters of the specialty "Technological education".

The curricula present the interdependence and correspondence between competencies and academic disciplines (practices), which takes place in Table 1.

Table1. *Correspondence between competencies and academic disciplines (modules) of the curriculum for the preparation of a master of technological education*

Code and name of discipline (module)		Competences													
		K-1	K-2	K-3	K-4	K-5	K-6	K-7	K-8	K-9	K-10	K-11	K-12	K-13	K-14
1		*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
ГСЕ 01	Philosophy of education	●			●										
ГСЕ 02	Foreign language (by specialty)	●		●											
ГСЕ 03	Legal support of higher education	●			●										
МПН 01	Occupational Health in						●			●					
1		*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
МПН 02	Civil Protection						●			●					
МПН 03	Ecology						●			●					
МПН 04	Management in education											●		●	●

Code	Subject												
МПН 05	Theory and practice of scientific and pedagogical research	●					●		●			●	
ПП 01	Pedagogy of higher education		●	●	●		●						
ПП 02	Psychology of higher education		●		●	●	●						
ПП 03	Methods of teaching general technical disciplines				●		●	●	●	●	●	●	●
ПП 04	Scientific principles of theory and methods of teaching technology				●		●	●	●	●	●	●	●
ПП 05	Creative technologies of higher education					●	●	●		●		●	
ПП 06	Pedagogical design of educational and scientific environment				●		●	●	●				
ПП 07	Assistant (passive) practice						●				●	●	
ПП 08	Assistant (active) practice						●				●	●	

The development of curricula was carried out in accordance with the requirements for the mandatory minimum content of the regulatory part of the training.

To determine the list of subjects and the sequence of their study, interdisciplinary links were identified, which allowed to introduce new integrative courses with a modular structure. The application of the modular structure of the content of professional training of the master of technological education made it possible to present it in the form of structural formations - modular blocks, which include: general science, psychological and pedagogical, special subject, practical and research. Each block includes integrated content modules with organizational and methodological, interdisciplinary structure of educational material, which

provides the formation of components of professional and pedagogical competence of the master of technological education in the process of professional training (table 2).

Identification of interdisciplinary links in the design of integrated modules was carried out through the analysis of experience in teaching technical and technological disciplines, material and technical base, level of educational and methodological support, which allowed to design the structure and content of each module and develop educational and methodological complexes of integrated courses (EMCIC).

Table 2. *Modular structure of the content of professional training of the master of technological education*

Modules	The content of professional training
1	2
1. Theoretical training	
1.1 General scientific training	
МЗ-1	1.1.1 Philosophy of education
МЗ-2	1.1.2 Foreign language by specialty
МЗ-3	1.1.3 Legal support of higher education
МЗ-4	1.1.4 Occupational Health in
МЗ-5	1.1.5 Civil protection
МЗ-6	1.1.6 Ecology
1.2 Psychological and pedagogical training	
МП-1	1.2.1 Pedagogy of higher education
МП-2	1.2.2 Psychology of higher education
МП-3	1.2.3 Pedagogical design of educational and scientific environment
МП-4	1.2.4 Management in education
1	2
1.3 Special-subject	
МС-1	1.3.1 Methods of teaching general technical disciplines
МС-2	1.3.2 Scientific principles of theory and methods of teaching technology
МС-3	1.3.3 Creative technologies of higher education
2. Practical training	
МПП-1	2.1 Assistant (passive) practice
МПП-2	2.2 Assistant (active) practice

3. Research training	
МНД-1	3.1 Theory and practice of scientific and pedagogical research
МНД-2	3.2 State comprehensive qualifying examination
МНД-3	3.3 Master's thesis

Tests of different levels of complexity were developed by the creative team of teachers to diagnose the learning outcomes. The analysis of the results of diagnosis and intermediate assessments of the level of preparedness was an indicator of the effectiveness of the implemented integrative-modular system of education, which allowed to optimize the most significant parameters studied and improve the structure of EMCIC.

The use of competency approach and modular technologies in designing the content of professional training of teachers of general technical disciplines and methods of teaching technology expands the possibilities of its improvement, introduces new qualities into the existing educational process, as it includes the whole set of elements and connections between them (goals, structure, content, knowledge). , skills, competencies, forms, methods and means of teaching, activities of teachers and students, internal and external learning conditions). Their implementation provides a high degree of humanization, dynamism, flexibility, individualization of education and training, adaptability to the internal conditions of the pedagogical process and the external conditions of the educational structure.

The design of the structure and content of educational material containing the block structure and integrated content modules (table 2) was carried out so that upon its completion the student achieved a certain didactic goal, expressed in the formation of professional and pedagogical competence, which is realized in solving educational and practical tasks.

The procedure for developing the structure and content of integrated modules will be shown on the example of special subject training: methods of teaching general technical disciplines, scientific principles of theory and methods of teaching technology and pedagogical design of the educational environment. During the development, the purpose of their study was determined with a description of the complexity, duration and sequence of study, evaluation criteria, interaction between students and teachers.

Thus, the integrated module (MC-1) "Methods of teaching general technical disciplines", which is part of the special subject training, is represented by four content modules: MC - 1.1. - "Theoretical foundations of the study of general technical disciplines"; MC - 1.2. - "Didactic bases of general technical training"; MC - 1.3. - "Methodological features of teaching

general technical disciplines"; MC - 1.4. - "Methodological aspects of teaching general technical disciplines".

The integrated content module (MC-2) "Scientific principles of the theory and methods of technology teaching", which is part of the special subject training, is represented by two modules: MC - 2.1. - "General issues of teaching the course" Theory and methods of teaching technology "; MC - 2.2. - "Methods of studying the course".

The following integrated module (MC-3) "Creative technologies in higher education" is represented by two content modules: MC - 3.1. - "General concepts of creative educational activity"; MC - 3.2. - "Characteristics of creative technologies".

As a result of mastering the developed author's model of the structure and content of professional training of the master of technological education, future specialists form such basic complex knowledge, skills and personal qualities that determine the level of formation of professional and pedagogical competence.

Conclusions

According to the results of the study, the following conclusions can be made: when designing the content of training masters of technological education it is necessary to take into account the general principles of building the content of education and the principles of updating the content of training to the requirements of time; designing the content component of integrated modules of psychological-pedagogical and special-subject training involves determining their goals and objectives, selection of innovative content for each topic of the content module, selection of forms, methods and technologies of its implementation, determination of evaluation criteria and system of diagnostics of success of undergraduates; the content component of professional training of masters of technological education must contain knowledge and experience of innovative psychological-pedagogical and technical-technological activity of a teacher in the system of higher educational institution; the effectiveness of the content of professional training of future teachers of general technical disciplines and methods of teaching technology is determined by the effectiveness of professional activity, which can be characterized as the formation of professional and pedagogical competence, ability to professional and pedagogical self-development and self-improvement.

The master's pedagogical process is notable for its complexity and exactingness, the complication of tasks and the introduction of new forms,

methods and means of professional training of masters of technological education, the creation of an innovative psychological climate in the academic group based on solving situations and theoretical and pedagogical problems that are important for the development of professional potential. Based on the analysis of scientific sources on the content of vocational education we can formulate general requirements for pedagogical design of educational content training of future teachers of general technical disciplines and methods of teaching technology: when designing the content of training it is necessary to take into account both general principles professional training; pedagogical design of the content of education should reveal features and directions of professional activity of the teacher in system of innovative development of higher educational institution; the specifics of professional and pedagogical training for this type of activity in the educational environment of the university; the content of training of future teachers should correspond to the purposes of the chosen model of education and others.

The choice of forms and means of organization, methods and technologies of teaching in a higher educational institution in the process of professional training of a teacher is due to the tasks of professional training of masters of technological education, the peculiarities of the content of the subject and its individual sections, the specific content of classes, the composition, the level of their training, and a skillful combination of various forms , means, methods and technologies of organizing training allows undergraduates to comprehensively solve problems in educational, educational and scientific work, firmly and consciously assimilate knowledge, master the basics of pedagogical skills.

From the analysis of scientific sources and own pedagogical experience, it has been established that the variety of forms of research work of masters makes it possible for each student to find an occupation to their liking, and participation in it is necessary for the most harmonious, thorough education and research experience, which is an important factor of training of a young specialist and scientist. *The main factors that determine the effectiveness of the organization of research activities of masters of technological education include: personality-oriented approach to its implementation; focus on productive end result; problem-based learning as a tool for the development of creative experience; optimal combination of logical and heuristic methods of solving the problem and others.*

According to the results of the study, the traditional system of organizing students' independent work has changed in the context of the transition to new working curricula, and a comparative analysis of the traditional sequential study of the course and training options with the

transfer of the center to the independent work of undergraduate students showed its effectiveness under the following conditions: strengthening the role of independent activities of undergraduate students during classroom classes; creating a positive motivation for independent work; systematic guidance, assistance and constant control by the teacher; clear planning of individual work of students.

Practice in a higher pedagogical educational institution is one of the most important forms in the system of professional training of a teacher; it ensures their readiness for practical activity in educational institutions of various types. Thus, the practical training of future teachers takes into account the need to combine sensory perception of educational information and rational, intensive speech and emotional development, the need to create situations of success in teaching and education and as a result - the formation and development of readiness for professional functions: teaching, developmental, educational, organizational, communicative, research, constructive, etc., acquisition of skills necessary for effective scientific and pedagogical activity - gnostic, design, constructive, communicative, organizational, etc..

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