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CHARACTERISTIC FEATURES OF JUNIOR BACHELOR TRAINING IN SPECIALTY "NURSING" AT THE DEPARTMENT OF MEDICAL AND PHARMACEUTICAL CHEMISTRY OF BSMU

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Abstract. *The authors consider the primary teaching and curriculum development approaches in the discipline of "Medical Chemistry" for students of specialty "Nursing" based on a credit-module system at the Professional College of Bukovinian State Medical University.*

Keywords: *medical chemistry, credit-module system, specialty "Nursing".*

Introduction.

Nowadays, the higher education system is a crucial area in the development of society, which attracts highly great attention and meets criticism in the context of development trends in world educational systems, including European ones. Numerous studies have shown that higher education provides the formation of individual potential and the development of analytical skills that contribute to national economic growth. Accordingly, the level of education, the volume, and the degree of use of knowledge will play an increasingly important role for the state and the individual. This fact is conditioned by a significant increase in industrial production, scientific and technical information volume, and rapid technological change. It is especially relevant for Ukraine as the commitments made by the country as a participant in the Bologna process steer the vector of modern policy and strategy of the state towards further development of national education, its adaptation to the conditions of a socially-oriented economy, transformation and integration into the European and world community.

Based on the fact that in the field of higher education, the educational cycle is being completed and a specialist is being formed, the following basic requirements for the training of a modern specialist can be distinguished: broad basic knowledge, the ability to work in a team, quickly master new technologies, possess self-education skills, skillsets for creative and research work. These qualities of a specialist become the main goals and reference points in building a modern higher education system that contributes to creating knowledge, access to it, its management, dissemination, and control of its absorption [1, 2]. The existing system of teaching and knowledge control of students does not fully meet these requirements. It does not allow organizing the educational process so that the student tries to work independently and systematically.

Many years of pedagogical experience have demonstrated that such a system of training specialists, especially in the medical field, is aimed at mass character. It

provides for the study of a significant number of subjects in a short time and mastery of a large amount of information, which is associated with a substantial psychological burden and subjectivity in assessing knowledge. Given this, implementing the credit-module system for organizing the educational process according to ECTS standards is very important in terms of competition in the world labor market and innovative development of society.

The main part.

The formation of a new education model, the further development of socio-economic transformations in Ukraine, and the integration of education into the international community put forward fundamentally new requirements for training medical professionals [3].

Great opportunities for graduates in the application of professional skills have appeared due to laboratory services in the structure of almost every medical institution, let alone specialized diagnostic centers and laboratories, the specific work of which requires employees to understand enterprise strategy, the need for organizational change, ability to work in a group, to carry out business communication, etc.

In 2020, the Professional College of Bukovinian State Medical University launched training junior bachelors in "Nursing" on a credit-module system for organization of the educational process. Teachers of the Department of Medical and Pharmaceutical Chemistry, which trains students in such specialty in medical chemistry, developed a curriculum adapted to the credit-module system of education. It has the following structure: explanatory note, the purpose of studying the discipline, structured content for individual modules, where each contains a certain number of ECTS (credits), a thematic plan of lectures and practical classes (modules), a thematic program for self-study (modules), list of questions for the final control (for each module and the discipline as a whole), knowledge check types, list of educational and methodical literature.

When studying the discipline "Medical Chemistry", students gain knowledge about the main types of chemical equilibrium, which plays an essential role in the formation of a holistic physical-chemical approach to the study of life processes, as well as the ability to apply chemical methods of quantitative and qualitative analysis, classification of chemical properties and transformations the process of life of the organism.

Due to the requirements of the credit-module system of education, the amount of study time for learning medical chemistry in the curriculum is defined in credits. In its turn, the content of the curriculum is structured into three modules, each of which includes two structural modules.

When training a future specialist, it is necessary to consider the formation of professional and general competencies enclosed in the list recommended by the TUNING project. The discipline "Medical Chemistry" provides students with the following competencies:

- *integrated:* the ability to solve typical and complex specialized tasks and practical problems in the learning process, which involves conducting research, and implementing innovations and is characterized by complexity and uncertainty of

conditions and requirements.

- *general:* the ability to apply knowledge in a variety of practical situations; awareness and understanding of the subject area and the profession; the ability to self-regulate and maintain a healthy lifestyle, adapt and act in a new situation; the ability to choose a communication strategy; the ability to work in a team; interpersonal skills; the ability to communicate effectively in the native language both orally and in writing; ability to communicate in a second language; the ability to apply the skills in the use of information and communication technologies; the ability to think abstractly, analyze and synthesize, the ability to learn and apply the most up to date training experience; the ability to evaluate and ensure the quality of work performed; firm conviction and perseverance due to the set tasks and assumed responsibilities; the ability to act socially responsible and socially conscious; striving to save the environment.

- *special (professional, subject):* the ability to carry out laboratory and instrumental research, evaluate their results.

In the process of studying medical chemistry the following learning integrative outcomes are achieved: the ability to apply knowledge when solving practical problems; the ability to use knowledge and awareness of the subject area and understanding the profession; understanding self-regulation and maintaining a healthy lifestyle, the ability to adapt and act in a new situation; the ability to be aware of the choice of communication strategy; ability to work in a team; interpersonal skills; the ability to effectively communicate, formulate and solve problems in the native language, both orally and in writing; the ability to use some information and communication technologies; understanding of applied techniques and methods of planning and research analysis, as well as their limitations regarding specialization; the ability to analyze and evaluate chemical processes, select and apply suitable standard analytical, calculation and experimental methods, interpret research findings; acquisition of practical skills for solving complex problems of chemical and biological projects and conducting research in accordance with specialization; the ability to collect, interpret relevant data and analyze complications within a discipline to make judgments that highlight social and ethical issues; understanding the striving to protect the environment; the ability to demonstrate the current knowledge level of the relevant problems in medical chemistry to solve the medical issues; the ability to show, understand and evaluate physical and chemical (laboratory and instrumental) studies of biological systems of the human body and the environment; the ability to analyze and interpret physicochemical processes occurring in the human body; the ability to compare the fundamental phenomena of chemistry with the principles of medicine and to develop components and methods of clinical research based on these principles.

Types of classes according to the curriculum are lectures, practical classes, and self-study of students. According to the modern education system, more attention is paid to the independent work of students. At the Department of Medical and Pharmaceutical Chemistry, students majoring in "Nursing" are offered the following types of individual work and tasks for them:

✓ *Preparation of a review of the scientific literature on one of the topics*:

- practical aspects of the application of medicinal chemistry in medicine;
- the role of d-elements in the enzyme processes of the organism;
- criteria for evaluating laboratory research investigations: reliability, accuracy, specificity, sensitivity and error method;
- multienzyme complexes: features of structure and catalysis;
- biological ligands and complexing agents: functions and tasks;
- kinetic features of the enzyme systems of the body;
- biological catalysis: specificity and selectivity;
- redox reactions in living organisms;
- application of modern methods of quantitative analysis in medicine;
- acid-base homeostasis: biological role and possible causes of imbalance;
- buffer systems of the organism: biological role and consequences of dysfunction;
- biological role and application of electrode potentials in medicine;
- colloidal systems in living organisms: formation, stability and coagulation mechanisms;
- biological role and application of osmotic processes in medicine;
- high molecular substances in living organisms: mechanisms of formation, resistance and properties.

✓ *Report presentation at a scientific-practical conference*

✓ *Preparation of articles, reports*

✓ *Conducting experimental researches:*

- qualitative determination of macronutrients in biological fluids, in particular, Nitrogen, Chlorine, Calcium in the blood;
- determination of carbonate hardness of natural water and acidity of gastric juice;
- determination of blood sugar, lactic acid, ketone bodies.

✓ *Preparation of demonstration tables.*

Completing individual tasks by the student increases the grade for the discipline and promotes the development of creative thinking, raising the general scientific level and developing research skills.

The module grade is defined as the sum of the current academic activity scores (in points) and the final module control score (in points) to be set when evaluating theoretical knowledge and practical skills by the lists defined by a discipline-based curriculum. The maximum number of points that a student can score when studying each module constitutes 200, including 120 points (60%) for current academic activities and 80 points (40%) for the final module control. Thus, the ratio between the evaluation results of the educational activity and the final module control of 60% to 40% is chosen.

The curriculum provides various knowledge check types, such as questioning techniques (individual and general), solving test tasks, and situational tasks to assess the educational activities of students.

Conclusions.

Module training is an alternative training tendency resulting from an activity and activity-based approach to the pedagogical process. The essence of module learning

is more independent or completely independent work with the proposed individual curriculum, i.e., a module that covers one autonomous unit of educational material or field of activity. Thus, the student's activity in mastering the academic material is decisive. The role of the teacher can vary from information-dispensing and controlling to advisory and coordinating. The importance of introducing a credit-module training system lies in stimulating the efficient work of teachers and students and systematizing work during the semester [4].

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