MINISTRY OF HEALTH OF UKRAINE

BOGOMOLETS NATIONAL MEDICAL UNIVERSITY

STUDENT'S WORKBOOK

(auditory and extra-auditory independent work)

Academic discipline	Actual Problems of Pharmacy Education
Branch of knowledge	22 "Health care"
Specialty	226 "Pharmacy, industrial pharmacy"
Specialization	226.01 "Pharmacy"
Department	Analytical, physical and colloid chemistry

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CONTENTS

INTRODUCTION 3
Topic 1. Bologna process and quality of education 5
Topic 2. Restructuring of the higher education in Ukraine according to the “Law on Higher Education”, ISCED-2013 and NQFs 9
Topic 3. Organization and control of independent work of students 14
Topic 4. Current trends in the development of higher pharmacy education 18
Topic 5. Education of a leader in the pharmaceutical industry 22
Topic 6. Pharmacy education in Ukraine and abroad, stages of its development 26
Topic 7. Innovative technologies of teaching disciplines 30
Topic 8. Research work of students 34
Topic 9. Todays and problems of higher education in Ukraine 38
Topic 10. The role of chemical and humanities in the education of pharmacists 41

INTRODUCTION

The workbook for independent auditory and extra-auditory work of students of specialty 226 “Pharmacy, industrial pharmacy” for discipline “Actual problems of pharmacy education” is a structured methodical development that contains basic information for the successful assimilation of the educational material of each topic of the discipline and preparation for practical classes.

The main purpose of using the workbook is to optimize and increase the effectiveness of the educational and cognitive activity of students by mastering the skills of solving difficult problems that require updating and integration of knowledge, in particular in the healthcare; solving professional problems; be responsible for the results of their activities in complex and unpredictable conditions.

Features of the proposed tasks

The proposed tasks for auditory and extra-auditory work are aimed at the development of abstract thinking, analysis and synthesis, the ability to work in a team and the formation of the ability to apply knowledge in practical situations.

The order of tasks for independent work

Tasks of independent extra-auditory work should be completed till practical lesson on this topic.

Tasks of auditory independent work are completed during a practical lesson.

During performance the independent work, the student should write down his answers to the assigned tasks in the workbook.

Evaluation criteria

When evaluating the performance of independent work, preference is given to structured written tasks.

The grade **“5 − Perfectly”** – student answers written tasks without mistakes.

The grade **“4 − Good”** – student answers written tasks with minor errors.

The grade **“3 − Satisfactory”** – student answers written tasks with significant errors.

The grade **“2 − Unsatisfactory”** – student answers written tasks with gross errors or does not give answers to them.

Rules for keeping a workbook

Adherence to academic integrity by students involves:

− independent performance of all types of work, tasks, forms of control provided for by the work program of this educational discipline;

− references to sources of information in the case of using ideas, developments, statements, information;

− compliance with the legislation on copyright and related rights;

− providing reliable information about the results of one’s own educational (scientific, creative) activities, used research methods and sources of information.

Course ID: 7410

For your attention on the platform are presented:

– academic curriculum
– syllabus
– guidelines to lectures
– guidelines to practical lectures
– presentations of lectures
– recommended literature
– workbook for auditory and extra-auditory work

The authors of the workbook hope that the proposed elective course will be interesting and useful for future masters of pharmacy!

We wish you success!

Topic 1. Bologna process and quality of education

Purpose: analyze the main stages of implementation of the education system in accordance with the Bologna Declaration and the set of specified objectives of Bologna Process.

Student should:

– to know the main stages of implementation of the education system in accordance with the Bologna Declaration;

− to analyze the set of specified objectives of Bologna Process;

− to know the main tools of Bologna Process.

Basic concepts of the topic:

Term, parameter, characteristic	*Definition*
Bologna Process	collective effort of public authorities, universities, teachers, and students, together with stakeholder associations, employers, and quality assurance agencies, that aims to create a more compatible, comparable, and coherent system of higher education in Europe.
Bologna Declaration	foundational document of the Bologna Process; the declaration aimed to establish a European Higher Education Area, with the goal of making higher education systems across Europe more compatible, comparable, and competitive globally.
ECTS credit system	standardized credit system used across the European Higher Education Area to facilitate the recognition and transfer of academic credits between institutions.

Recommended literature:

Basic

1. Kushnir, I. (2016). The role of the Bologna Process in defining Europe. *European Educational Research Journal*, *15*(6), 664-675. URL: https://journals.sagepub.com/doi/full/10.1177/1474904116657549 (date of access: 20.08.2024).

2. Law of Ukraine “On Higher Education” URL: https://zakon.rada.gov.ua/laws/show/en/1556-18?lang=en#Text (date of access: 20.08.2024).

3. Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). (2015). Brussels, Belgium. URL: https://enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf (date of access: 20.08.2024).

Additional

1. Quality assurance in higher education institutions in Ukraine 2016 through the prism of European Guidelines and Standards ESQ 2015 / Edited by Mazurkiewicz,

EXANTE, Wroclaw, 2016. URL: https://projects.lnu.edu.ua/quaere/wp-content/uploads/sites/6/2018/03/QA-in-Ukraine-reports.pdf (date of access: 20.08.2024).

Information resources

1. https://nmuofficial.com/en/zagalni-vidomosti/kafedri/department-medical-general-chemistry/
2. https://likar.nmu.kiev.ua/md/course/view.php?id=7410

Questions for theoretical study:

1. Main theses of Bologna Declaration.
2. Importance of Bologna Process.

Tasks for extra-auditory independent work:

1. Name advantages of Bologna Process (your own opinion).

2. Name disadvantages of Bologna Process (your own opinion).

Tasks for auditory work:

1. Name the main theses of Bologna Declaration.

2. Explain steps of the process of Ukraine in joining the European Higher Education Area.

Tasks for auditory independent work (under the supervision of a teacher):

1. Why is the Bologna Process important?

2. Why is ECTS needed?

Topic 2. Restructuring of the higher education in Ukraine according to the "Law on Higher Education", ISCED-2013 and NQFs

Purpose: analyze the main provisions of Law "On Higher Education", consider education levels according to the National Qualification Framework (NQF) and the education levels according to the International Standard Classification of Education (ISCED).

Student should:

− to analyze the main provisions of Law "On Higher Education";

− to know the education levels according to the National Qualification Framework (NQF);

− to know the education levels according to the International Standard Classification of Education (ISCED).

Basic concepts of the topic:

Term, parameter, characteristic	*Definition*
National Qualification Framework	formal system that categorizes and organizes qualifications within a country according to a set of criteria for specified levels of learning achievements; the purpose of an NQF is to provide a clear and structured way to recognize the skills, knowledge, and competencies that learners have acquired, making it easier for individuals, employers, and educational institutions to understand and compare qualifications.
International Standard Classification of Education	framework developed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) to categorize and compare education systems across different countries; it provides a comprehensive structure for classifying educational programs by their levels and fields of study, ensuring that educational statistics and data are comparable internationally.

Recommended literature:

Basic

1. OECD (2017), "Definition and classification of educational programmes: The practical implementation of ISCED 2011", in OECD Handbook for Internationally Comparative Education Statistics: Concepts, Standards, Definitions and Classifications, OECD Publishing, Paris. URL: https://www.oecd-ilibrary.org/docserver/9789264279889-8-en.pdf?expires=1661516332&id=id&accname=guest&checksum=1B2B4854B46BB2F99ECFCBA949A5CB33 (date of access: 20.08.2024).

2. International Standard Classification of Education. Fields of education and training 2013 (ISCED-F 2013) – Detailed field descriptions. UNESCO Institute for Statistics, Canada, 2015, 96 p. URL: https://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-fields-of-education-and-training-2013-detailed-field-descriptions-2015-en.pdf (date of access: 20.08.2024).

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1. Law of Ukraine "On Higher Education" URL: https://zakon.rada.gov.ua/laws/show/en/1556-18?lang=en#Text (date of access: 20.08.2024).

2. Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). (2015). Brussels, Belgium. URL: https://enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf (date of access: 20.08.2024).

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2. https://likar.nmu.kiev.ua/md/course/view.php?id=7410

Questions for theoretical study:

1. Mission Statement and Strategy of the National Agency for Higher Education Quality Assurance (NAQA).
2. National Qualification Framework (NQF).
3. International Standard Classification of Education (ISCED).

Tasks for extra-auditory independent work:

1. Explain the three cycle structure of Higher Education.

2. What is National Agency for Higher Education Quality Assurance?

3. How much levels of education are exist according to the National Qualifications Framework?

Tasks for auditory work:

1. What are the main provisions of Law “On Higher Education”?

2. What are the main strategic goals of the National Agency for Higher Education Quality Assurance?

3. Explain the competencies according to the second level of higher education (master's degree) according to the National Qualifications Framework. Give examples.

4. Explain the main points of International Standard Classification of Education.

Tasks for auditory independent work (under the supervision of a teacher):

1. Do you support the implementation of the Law of Ukraine “On Higher Education”? Explain your answer.

2. Describe the correspondence between ISCED 2011 and ISCED 1997 levels.

Topic 3. Organization and control of independent work of students

Purpose: analyze the role, types and organization of independent students' work.

Student should:

− to know the concept of "independent work";
− to analyze the role and importance for independent students' work;
− to know the means of organizing independent activities of students;
− to know the types of independent activities of students.

Basic concepts of the topic:

Term, parameter, characteristic	*Definition*
Concept of "independent work"	the concept of "independent work" refers to tasks or activities that individuals carry out on their own, without direct supervision or collaboration with others; it is an essential component of learning and professional development, emphasizing personal responsibility, self-direction, and initiative.
Key Characteristics of Independent Work	Self-Motivation: The ability to stay focused and driven without external prompts. Time Management: Efficiently organizing one's schedule and prioritizing tasks. Accountability: Taking responsibility for one's work and outcomes. Resourcefulness: Finding and using appropriate resources to complete tasks. Critical Thinking: Analyzing situations and making decisions independently.

Recommended literature:

Basic

1. Sattarov, A. R. (2021). Mobile learning technology for organizing independent work in the educational process of higher education. *Novateur Publications*, *7*(2), 260-266. URL: https://repo.journalnx.com/index.php/nx/article/view/2355 (date of access: 20.08.2024).

2. Elisafenki, M. K., Kruglikova, G. A., & Protasova, E. E. (2019). Digital technologies for organizing an independent work of students // Advances in economics, Business and Management Research (1st International Scientific Conference "Modern Management Trends and the Digital Economy: from Regional Development to Global Economic Growth" (MTDE 2019), 81, 644-646. URL:

https://www.atlantis-press.com/proceedings/mtde-19/125908910 (date of access: 20.08.2024).

Additional

1. Law of Ukraine "On Higher Education" URL: https://zakon.rada.gov.ua/laws/show/en/1556-18?lang=en#Text (date of access: 20.08.2024).

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Questions for theoretical study:

1. Organization of independent work of students' on credit technology.
2. Types of independent activities of students.
3. Role of independent students' work.

Tasks for extra-auditory independent work:

1. Name the means of organizing independent activities of students.

2. Which types of independent work are now present in your education?

Tasks for auditory work:

1. Why independent work is important for future pharmacist?

2. Analyze the levels of individual work and try to find correspondence between them and disciplines. To each of studying discipline propose the most appropriate level of students' individual work.

Tasks for auditory independent work (under the supervision of a teacher):

1. Which means of organizing independent activities of students are the most useful in pharmacy education? Explain your answer.

2. Compare auditory and extra-auditory independent work of students.

Topic 4. Current trends in the development of higher pharmacy education

Purpose: analyze the factors, which affect the learning process in pharmacy education and particularly lifelong learning; consider a student-centered approach to teaching.

Student should:

− to analyze the factors, which affect the learning process in pharmacy education and particularly lifelong learning;

− to analyze a student-centered approach to teaching;

− to know the relations between teaching and learning.

Basic concepts of the topic:

Term, parameter, characteristic	*Definition*
Higher pharmacy education	involves advanced training and education for those pursuing careers in pharmacy; it generally includes undergraduate, graduate, and postgraduate levels of study, focusing on preparing students for professional practice, research, and leadership roles in the field of pharmacy.
Current trends in the development of higher pharmacy education	reflect the evolving landscape of healthcare, technological advancements, and changes in the pharmaceutical industry.

Recommended literature:

Basic

1. Skyba, M. (2018). The main tendencies of higher education in Ukraine in the context of the current challenges of European integration. *International Entrepreneurship*, *4*(2), 43-54. URL: https://ier.uek.krakow.pl/index.php/pm/article/view/1627/ (date of access: 20.08.2024).

2. Anderson, C., & Arakawa, N. (2021). Pharmacy education development. *Pharmacy*, *9*(4), 168-172. URL: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8544723/ (date of access: 20.08.2024).

Additional

1. Voloshinov, S., Kruglyk, V., Osadchyi, V., Osadcha, K., & Symonenko, S. (2020). Realities and prospects of distance learning at higher education institutions of Ukraine. *Ukrainian Journal of Educational Studies and Information Technology*, *8*(1), 1-16. URL: https://uesit.org.ua/index.php/itse/article/view/265 (date of access: 20.08.2024).

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Questions for theoretical study:

1. Learning to teach.
2. Students' thinking and reasoning.
3. Changing pharmacy teaching.

Tasks for extra-auditory independent work:

1. Students' learning: definition and improving

2. Constructive alignment and motivation.

Tasks for auditory work:

1. Teachers' approaches to teaching.

2. Assessment methods.

Tasks for auditory independent work (under the supervision of a teacher):

1. Summarize key trends of the development of higher pharmacy education.

Topic 5. Education of a leader in the pharmaceutical industry

Purpose: analyze the reasons why leadership is important for pharmacy education; analyze "seven-star pharmacist" concept and "eight-star pharmacist" concept.

Student should:

− to know what is leadership;
− to analyze the reasons why leadership is important for pharmacy education;
− to analyze seven-star pharmacist concept;
− to analyze eight-star pharmacist concept;
− to know leadership competencies.

Basic concepts of the topic:

Term, parameter, characteristic	*Definition*
Leadership	combination of skills, behaviors, and qualities that help direct and motivate a group or organization.
Education of a leader	blend of formal and informal learning experiences that equip them with the skills, knowledge, and qualities necessary for effective leadership.
"Seven-Star Pharmacist" concept	comprehensive framework developed by the International Pharmaceutical Federation to define the evolving role of pharmacists in modern healthcare systems; this concept outlines seven key roles that pharmacists should ideally fulfill to provide optimal care and meet the diverse needs of patients.

Recommended literature:

Basic

1. Van Diggele, C., Burgess, A., Roberts, C., & Mellis, C. (2020). Leadership in healthcare education. *Medical Education*, *20*, 456-462. URL: https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-020-02288-x (date of access: 20.08.2024).

2. Reed, B. N., Klutts, A. M., & Mattingly II, T. J. (2019). A systematic review of leadership definitions, competencies, and assessment methods in pharmacy education. *American Journal of Pharmaceutical Education*, *83*(9), 1873-1885. URL: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6920635/ (date of access: 20.08.2024).

Additional

1. Quality assurance in higher education institutions in Ukraine 2016 through the prism of European Guidelines and Standards ESQ 2015 / Edited by Mazurkiewicz, EXANTE, Wroclaw, 2016. URL: https://projects.lnu.edu.ua/quaere/wp-

content/uploads/sites/6/2018/03/QA-in-Ukraine-reports.pdf (date of access: 20.08.2024).

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2. https://likar.nmu.kiev.ua/md/course/view.php?id=7410

Questions for theoretical study:

1. Seven-star pharmacist concept and eight-star pharmacist concepts.
2. Leadership competencies.

Tasks for extra-auditory independent work:

1. There many defunitions of leadership. Propose the best definition for term “leadership” according to your own opinion. Argue your answer.

2. Name leadership competencies. Which are the most important according to your own opinion?

Tasks for auditory work:

1. Seven-star pharmacist concept and eight-star pharmacist concept. Explain each attribute of these concepts.

2. Is an additional eighth attribute (researcher) important for pharmacy education? Explain your answer.

Tasks for auditory independent work (under the supervision of a teacher):

1. Why leadership is important for pharmacy education?

Topic 6. Pharmacy education in Ukraine and abroad, stages of its development

Purpose: analyze the specific peculiarities, principles and features of the occupational training of pharmaceutical industry professionals; consider the main stages of development of the occupational training of pharmaceutical industry professionals in Ukraine.

Student should:

− to analyze the specific peculiarities, principles and features of the occupational training of pharmaceutical industry professionals;

− to know the main stages of development of the occupational training of pharmaceutical industry professionals in Ukraine.

Basic concepts of the topic:

Term, parameter, characteristic	*Definition*
Pharmacy education development	involves enhancing and evolving the educational frameworks, curricula, and methods to better prepare future pharmacists for the changing landscape of healthcare.

Recommended literature:

Basic

1. Anderson, C., & Arakawa, N. (2021). Pharmacy education development. *Pharmacy*, *9*(4), 168-172. URL: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8544723/ (date of access: 20.08.2024).

2. Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). (2015). Brussels, Belgium. URL: https://enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf (date of access: 20.08.2024).

Additional

1. Kushnir, I. (2016). The role of the Bologna Process in defining Europe. *European Educational Research Journal*, *15*(6), 664-675. URL: https://journals.sagepub.com/doi/full/10.1177/1474904116657549 (date of access: 20.08.2024).

Information resources

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Questions for theoretical study:

1. Basic trends of the system of the occupational training of pharmaceutical industry professionals in Ukraine.

2. Formation and development of the pharmaceutical science in Ukraine.

3. Development stages of the occupational training of pharmaceutical industry professionals in Ukraine.

Tasks for extra-auditory independent work:

1. Explain the essential changes of the pharmaceutical education of Ukraine since the end of XX century suffered.

Tasks for auditory work

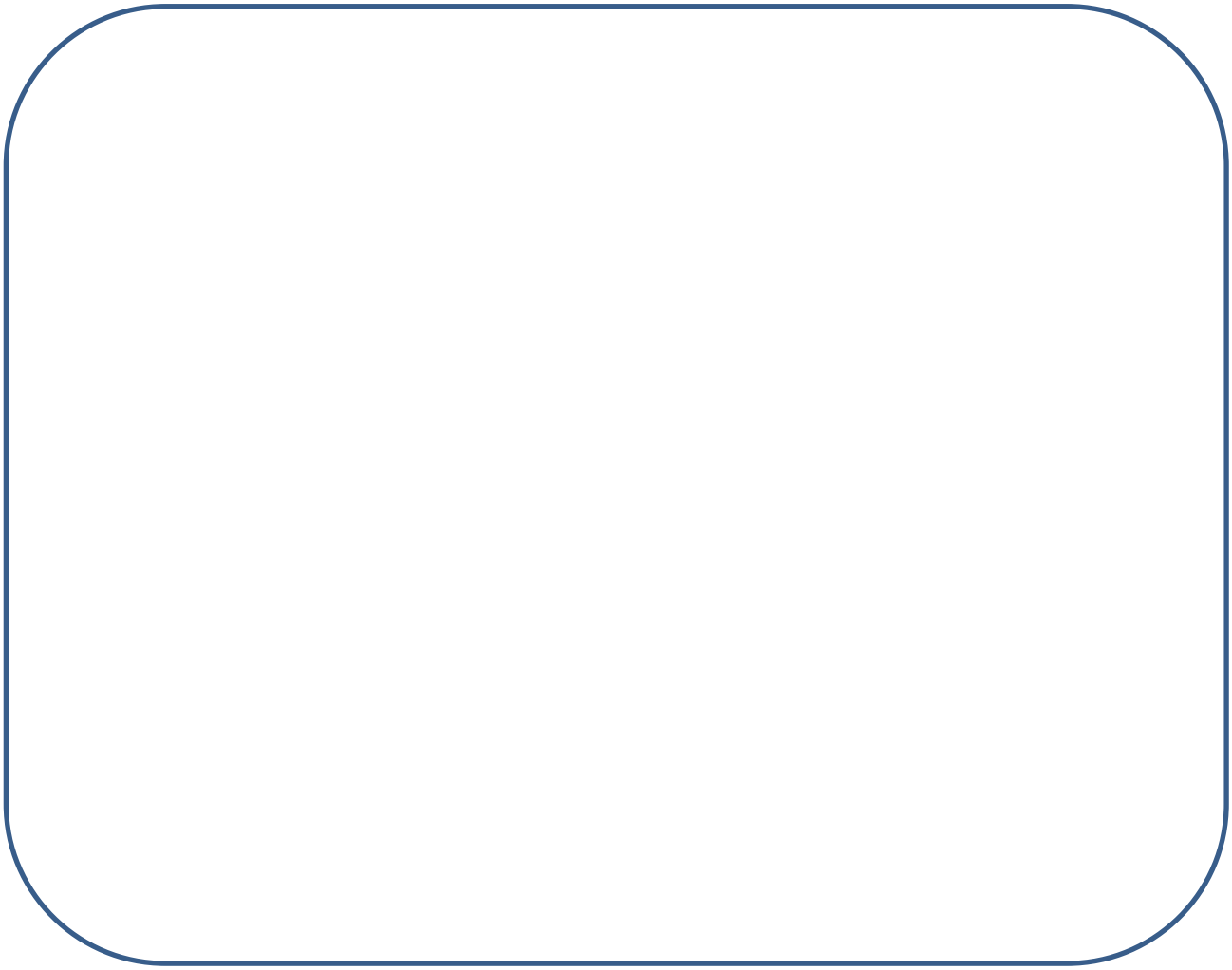
1. By which processes the development of the occupational training of pharmaceutical industry professionals in Ukraine are driven?

2. Where was the best progress in the development of pharmacy in the early 20th century?

3. Which Public organizations and societies were exist of the early 20th century?

Tasks for auditory independent work (under the supervision of a teacher):

1. Analyze the specific peculiarities, principles and features of the occupational training of pharmaceutical industry professionals.



Topic 7. Innovative technologies of teaching disciplines

Purpose: analyze the different types of innovative technologies in the process of online education; analyze the place and role of information technology in the innovative education development.

Student should:

− to determine different definitions of term “innovation”;

− to discuss the different types of innovative technologies in the process of remote education;

− to analyze the place and role of information technology in the innovative education development;

− to analyze the structure, the ways and the main components of the innovative education development;

− to examine the place and role of information technology in the strategy of innovative education development.

Basic concepts of the topic:

Term, parameter, characteristic	*Definition*
Innovation	process of creating, developing, and implementing new ideas, methods, products, or services that provide value or solve problems in novel ways.
Information technology	broad range of technologies and practices involved in managing and using computer systems, software, and networks to support various functions in organizations and daily life.
Innovative education development	implementation of new and creative approaches to enhance teaching, learning, and educational outcomes.

Recommended literature:

Basic

1. Ivzhenko, I., Sokol, I., Kochyna, V., Noskova, M., Yeromina, L., & Blokhina, V. (2020). Information and Innovative Technologies in Distance Learning in Higher Education Institutions of Ukraine. *Systematic Reviews in Pharmacy, 11*(9). 462-465. URL: https://www.sysrevpharm.org/abstract/information-and-innovative-technologies-in-distance-learning-in-higher-education-institutions-of-ukraine-66253.html (date of access: 20.08.2024).

2. Digital technologies for organizing an independent work of students // Advances in economics, Business and Management Research (1st International Scientific Conference “Modern Management Trends and the Digital Economy: from Regional Development to Global Economic Growth” (MTDE 2019), 81, 644-646. URL: https://www.atlantis-press.com/proceedings/mtde-19/125908910 (date of access: 20.08.2024).

Additional

1. Sattarov, A. R. (2021). Mobile learning technology for organizing independent work in the educational process of higher education. *Novateur Publications*, *7*(2), 260-266. URL: https://repo.journalnx.com/index.php/nx/article/view/2355 (date of access: 20.08.2024).

Information resources

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Questions for theoretical study:

1. Top innovative technologies in education.
2. Development and application of innovative technologies in the process of online education.

Tasks for extra-auditory independent work:

1. Analyze the different definitions of term “innovation” and propose the best definition according to your opinion.

2. Which innovative technologies do you use during the distance education? Which are the most useful?

Tasks for auditory work:

1. Analyze the different types of innovative technologies in the process of distance education and indicate cons and pros of each one.

2. Explain the structure, the ways and the main components of the innovative education development.

Tasks for auditory independent work (under the supervision of a teacher):

1. Explain the place and role of information technology in the innovative education development.

2. Analyze the role of e-mail and messengers in education.

Topic 8. Research work of students

Purpose: analyze purposes, tasks and objectives of research work of students; analyze the role of research work in pharmacy education; consider research work as one of the mechanisms for the integration of higher professional education into a modern innovative society.

Student should:

− to analyze purposes, tasks and objectives of research work of students;

− to analyze the different definitions of the term “research”;

− to analyze the role of research work in pharmacy education;

− to consider research work as one of the mechanisms for the integration of higher professional education into a modern innovative society.

Basic concepts of the topic:

Term, parameter, characteristic	*Definition*
Research	systematic and methodical process of inquiry designed to generate new knowledge, insights, or understanding about a particular subject or problem; it involves the collection, analysis, and interpretation of data to answer specific questions, solve problems, or contribute to the existing body of knowledge.
Research work of students	investigative activities undertaken by students as part of their academic or extracurricular pursuits; this work involves exploring a particular topic or question, gathering and analyzing data, and presenting findings to contribute to knowledge in their field of study.

Recommended literature:

Basic

1. Walkington, H. (2015). Students as researchers: Supporting undergraduate research in the disciplines in higher education. *The higher education academy*, *1*, 1-34. URL: https://info.lse.ac.uk/staff/divisions/Teaching-and-Learning-Centre/Assets/Documents/URI-documents/HEA-Students-as-researchers-1.pdf (date of access: 20.08.2024).

Additional

1. Reed, B. N., Klutts, A. M., & Mattingly II, T. J. (2019). A systematic review of leadership definitions, competencies, and assessment methods in pharmacy education. *American Journal of Pharmaceutical Education*, *83*(9), 1873-1885. URL: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6920635/ (date of access: 20.08.2024).

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Questions for theoretical study:

1. Purposes, tasks and objectives of research work of students.
2. Importantance of research work for students.

Tasks for extra-auditory independent work:

1. Analyze the different definitions of the term “research” and propose the best one according to your own opinion.

2. Name the types of research work.

Tasks for auditory work:

1. Name the purposes, tasks and objectives of research work of students.

2. Name reasons why research is important for students.

Tasks for auditory independent work (under the supervision of a teacher):

1. How the research work help you become the good pharmacists?

2. Can we consider research work as one of the mechanisms for the integration of higher professional education into a modern innovative society? Explain your answer.

Topic 9. Todays and problems of higher education in Ukraine

Purpose: analyze the main trends in the higher education in Ukraine; analyze the role of distance learning at higher education institutions of Ukraine; identify trends in the development of the educational environmental in the near and distant future in the context of globalization.

Student should:

− analyze the main trends in the higher education in Ukraine;

− analyze the role of distance learning at higher education institutions of Ukraine;

− identify trends in the development of the educational environmental in the near and distant future in the context of globalization;

− define opportunities for the adoption and interpretation of new trends within the framework of the education system of Ukraine.

Basic concepts of the topic:

Term, parameter, characteristic	*Definition*
Distance learning (online learning or remote education)	method of education where students engage in learning activities outside of a traditional classroom setting.
Educational environment	physical, social, and psychological settings and conditions in which learning occurs.

Recommended literature:

Basic

1. Voloshinov, S., Kruglyk, V., Osadchyi, V., Osadcha, K., & Symonenko, S. (2020). Realities and prospects of distance learning at higher education institutions of Ukraine. *Ukrainian Journal of Educational Studies and Information Technology*, *8*(1), 1-16. URL: https://uesit.org.ua/index.php/itse/article/view/265 (date of access: 20.08.2024).

2. Skyba, M. (2018). The main tendencies of higher education in Ukraine in the context of the current challenges of European integration. *International Entrepreneurship*, *4*(2), 43-54. URL: https://ier.uek.krakow.pl/index.php/pm/article/view/1627/ (date of access: 20.08.2024).

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Questions for theoretical study:

1. The main trends in the higher education in Ukraine.
2. Distance learning at higher education institutions of Ukraine.
3. Trends in the development of the educational environmental in the context of globalization.

Tasks for extra-auditory independent work:

1. The role of distance learning at higher education institutions of Ukraine.

Tasks for auditory work:

1. Name the main trends in the higher education in Ukraine.

2. How the COVID-19 have challenged the Ukrainian higher education?

Tasks for auditory independent work (under the supervision of a teacher):

1. How the changes in modern technologies of learning have challenged the Ukrainian higher education?

Topic 10. The role of chemical and humanities in the education of pharmacists

Purpose: analyze the role of chemistry in the education of pharmacists; analyze the role of humanities in the education of pharmacists.

Student should:
− analyze the role of chemistry in the education of pharmacists;
− analyze the role of humanities in the education of pharmacists.

Basic concepts of the topic:

Term, parameter, characteristic	*Definition*
Humanities	broad field of study that explores human culture, thought, and experience; they focus on understanding and interpreting the various ways humans express themselves and make sense of their world; the humanities encompass disciplines that study human society, history, language, literature, philosophy, and the arts; they are concerned with examining the ways in which humans understand themselves and their place in the world.

Recommended literature:

Basic

1. Owens, C. T., & Baergen, R. (2021). Pharmacy practice in high-volume community settings: barriers and ethical responsibilities. *Pharmacy*, *9*(2), 74. URL: https://www.mdpi.com/2226-4787/9/2/74 (date of access: 20.08.2024).

2. Costa, R. C. (2019). The place of the humanities in today's knowledge society. *Palgrave Communications*, *5*(38), 1-5. URL: https://www.nature.com/articles/s41599-019-0245-6 (date of access: 20.08.2024).

Additional

1. Van Diggele, C., Burgess, A., Roberts, C., & Mellis, C. (2020). Leadership in healthcare education. *Medical Education*, *20*, 456-462. URL: https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-020-02288-x (date of access: 20.08.2024).

Information resources

1. https://nmuofficial.com/en/zagalni-vidomosti/kafedri/department-medical-general-chemistry/
2. https://likar.nmu.kiev.ua/md/course/view.php?id=7410

Questions for theoretical study:

1. Importance of chemistry knowledge for a pharmacist.
2. Importance of humanistic subjects for a pharmacist.

Tasks for extra-auditory independent work:

1. Why study humanistic subjects?

2. Propose new elective courses which you want study in Bogomolets National Medical University.

Tasks for auditory work:

1. Why chemistry is important for pharmacist?

2. Which types of chemistry are important for pharmacist?

Tasks for auditory independent work (under the supervision of a teacher):

1. Analyze the arguments that the humanities are important.