



NATIONAL PIROGOV MEMORIAL MEDICAL UNIVERSITY, VINNYTSIA

COURSE SYLLABUS

For the training of master's students

PROCEEDING PRACTICE ON DRUG TECHNOLOGY

Specialty	226 Pharmacy, Industrial Pharmacy
Specialization	226.01 Pharmacy
Educational Programme	<i>EPP «Pharmacy», 2023</i>
Higher Education Level	the second (master`s) level
Academic year	2026-2027
Status of the Discipline	Mandatory
Language of Instruction	Ukrainian / English
Total Workload	2,5 of ECTS credits
Year of Study / Semester	IV/8 (full-time) IV/8 (part-time)
Developer	Assoc. Prof., PhD Tetiana VOITENKO
Instructor	Assoc. Prof., PhD Tetiana VOITENKO
Venue and Contact Details	Department of Pharmacy, Vinnytsia, 56 Pirogov Street, tel. 55 39 52 <i>pharmacy@vnmue.edu.ua</i>

1. DESCRIPTION OF THE ACADEMIC DISCIPLINE

ABSTRACT

Brief course overview and relevance.

The main focus of the programme is the acquisition of theoretical knowledge and practical skills in drug technology, the study of which is necessary for the successful mastery of professional training disciplines. The subject area of the programme is the theoretical aspects of technological processes in the manufacture of medicines in pharmacies and industrial pharmaceutical enterprises, the programme is focused on gaining knowledge of the technological processes of manufacturing various dosage forms. The practice involves acquaintance of higher education students with the technological process of manufacturing medicines in pharmacies and pharmaceutical enterprises, quality control, packaging and registration for release; mastering and improving the practical skills and abilities necessary for making independent decisions during specific work in production conditions.

The subject of the practice is to improve the knowledge and skills of manufacturing medicines in an industrial environment.

Together with other pharmaceutical disciplines and social sciences, the educational practice in drug technology plays an important role in shaping the worldview of specialists in the field of pharmacy and in providing them with special technological training for professional activities to supply the population and healthcare facilities with medicines. The practice also develops practical skills in the main stages of formation and development of the pharmaceutical industry and professional activity in Ukraine and abroad, as well as general requirements for the manufacture of medicines.

Prerequisites. The discipline is based on the study of such disciplines of the curriculum as: introduction to pharmacy (basic interdisciplinary interactions in pharmacy, concepts of drug technology and biopharmacy); botany (concepts of systematics, classification, histological structure and chemical composition of medicinal plants); drug technology: ATL; drug technology: PTL; propaedeutic practice in ATL; pharmacognosy.

PURPOSE AND OBJECTIVES

Purpose of the course. Course objective and its significance for professional activity: The purpose of the training practice in drug technology is to consolidate and deepen theoretical knowledge and practical skills related to the manufacture and quality assessment of dosage forms, as well as the formation of professional competencies.

As a result of studying the discipline, higher education students acquire knowledge of:

- mastery of the requirements of current regulatory documents (State Pharmacopoeia of Ukraine, GPP, guidelines and orders of the Ministry of Health) for the organisation of production activities, for the manufacture of medicines in various dosage forms;
- familiarisation with the organisation of manufacturing of medicinal products in pharmaceutical enterprises in accordance with the requirements of Good Manufacturing Practice (GMP);
- use in professional activities of regulatory and legislative acts of Ukraine, requirements of Good Pharmacy Practice (GPP) and Good Manufacturing Practice (GMP) for the manufacture of medicines in industrial enterprises;
- development of knowledge of theoretical foundations of manufacturing of different types of dosage forms, stage-by-stage control, ways to improve the technology of dosage forms in industrial conditions;
- studying the influence of storage conditions and type of packaging on the stability of medicinal products; studying industrial equipment, devices and automatic lines.

Competencies and learning outcomes fostered by the course/

Integral competence (IC): The ability to solve problems and to analyse and resolve practical issues of a research and/or innovative nature in the field of pharmacy.

General competencies (GC):

- GC 01: The desire to preserve the environment.
- GC 02. Ability to abstract thinking, analysis and synthesis.
- GC 03: Knowledge and understanding of the subject area and understanding of professional activities.
- GC 04. Ability to adapt and act in a new situation. Ability to take initiative.
- GC 06. Skills in the use of information and communication technologies.
- GC 07. Ability to choose a communication strategy, ability to work in a team and with experts from other fields of knowledge / types of economic activity.
- GC 08. Ability to evaluate and ensure the quality of work performed.
- GC 09. Ability to conduct research at the appropriate level.
- GC 11. Ability to preserve and enhance the moral, cultural, scientific values and achievements of society based on an understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, technology and technology, to use various types and forms of physical activity for active recreation and healthy lifestyle.

Special (professional/subject-specific) competencies (PC):

- PC 01. Ability to store, interpret and apply data necessary for professional activities, research and implementation of innovative projects in the field of pharmacy.
- PC 02. Ability to integrate knowledge and solve complex pharmacy problems in broad or multidisciplinary contexts.
- PC 04. Ability to use in professional activities the knowledge of regulatory and legal acts of Ukraine and recommendations of good pharmaceutical practices.
- PC 05. Ability to demonstrate and apply in practice communication skills, fundamental principles of pharmaceutical ethics and deontology based on moral obligations and values, ethical standards of professional behaviour and responsibility in accordance with the Ethical Code of Pharmacists of Ukraine and WHO guidelines.
- PC 06. Ability to clearly and unambiguously communicate own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, including students.
- PC 18. Ability to organise and carry out the production activities of pharmacies for the manufacture of medicines in various dosage forms according to prescriptions and orders of medical institutions, including the justification of technology and the choice of auxiliary materials in accordance with the rules of Good Pharmacy Practice (GPP).
- PC 19. Ability to organise and participate in the production of medicines in pharmaceutical enterprises, including the selection and justification of the technological process, equipment in accordance with the requirements of Good Manufacturing Practice (GMP) with the appropriate development and execution of the necessary documentation.
- PC 22. Ability to organise and carry out quality control of medicinal products in accordance with the requirements of the current State Pharmacopoeia of Ukraine and good practices in pharmacy, to determine methods of sampling for the control of medicinal products and to standardise them in accordance with current requirements, to prevent the distribution of counterfeit medicines.

Postrequisite. The discipline is the basis for the study of the following disciplines: technology of medicinal cosmetics, industrial practice in drug technology, pharmaceutical biotechnology, quality system in pharmacy.

2. LEARNING OUTCOMES

Integrative final programme learning outcomes fostered by the course:

- PLO 01. Apply specialised knowledge and skills in general and specialised disciplines in professional activities.
- PLO 02. Critically comprehend scientific and applied problems in the field of pharmacy.
- PLO 03. Evaluate and ensure the quality and effectiveness of activities in the field of pharmacy.
- PLO 04. To comply with the standards of sanitary and hygienic regime and safety requirements in the performance of professional activities.
- PLO 05. Plan and implement professional activities on the basis of regulatory legal acts of Ukraine and recommendations of good pharmaceutical practices.
- PLO 07. Demonstrate the ability to independently search, analyse and synthesise information from various sources, including professional literature, patents, databases; evaluate it, in particular, using statistical analysis, as well as apply these results to solve typical and complex specialised tasks of professional activity, including the development and production of medicines.
- PLO 08. Develop and make effective decisions on solving complex/complex problems of pharmacy personally and based on the results of joint discussion; formulate goals of own and team activities, taking into account social and industrial interests, overall strategy and existing constraints, determine the best ways to achieve goals.
- PLO 15. To formulate, argue, clearly and concretely communicate to specialists and non-specialists, including higher education students, information based on their own knowledge and professional experience, the main trends in the development of world pharmacy and related industries.
- PLO 22. Develop technological documentation for the manufacture of medicines, choose a rational technology, manufacture medicines in various dosage forms according to prescriptions and requirements (orders) of healthcare facilities, and prepare them for release.
- PLO 23. Carry out pharmaceutical development, substantiate the technology and organise the production of medicines at pharmaceutical enterprises and draw up technological documentation for the production of medicines at pharmaceutical enterprises.
- PLO 26. Ensure and carry out quality control of medicinal products of natural and synthetic origin and document its results; issue quality certificates and certificates of analysis in accordance with the requirements of the current edition of the State Pharmacopoeia of Ukraine, quality control methods (QCM), technological instructions, etc.; take measures to prevent the distribution of low-quality, counterfeit and unregistered medicinal products.

3. FORMS OF ORGANISATION OF THE EDUCATIONAL PROCESS AND THEIR SCOPE

Type of Learning Activity	Hours	
	Full-time	Part-time
Lectures:	-	-
Practical Classes:	30	-
Independent Study:	45	75
Total	75	75

4. THEMATIC PLAN

Module 1: Technology of pharmaceutical and industrial dosage forms

Topic 1: Production of solid dosage forms. Technology of manufacturing powders. Properties of powdered medicinal substances.

Topic 2: Production of pharmaceutical solutions. Preparation of aqueous and non-aqueous non-sterile liquid dosage forms.

Topic 3: Technology of manufacturing of extraction preparations.

Topic 4: Technology of manufacturing of medicines for parenteral use.

Topic 5: Differential credit.

5. FORMS AND METHODS OF ASSESSMENT OF LEARNING OUTCOMES

Ongoing Assessment during Practical Classes	Methods: oral and/or written assessment and testing, computer-based assessment and testing, completion of situational tasks.
*Final Assessment of the Academic Discipline – Graded Pass	It is conducted during the final practical class and is assessed in accordance with the Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsia: General Information / Key Documents https://www.vnmue.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf
Assessment Tools for Learning Achievement	Theoretical questions, tests, clinically oriented situational tasks, practical assignments, demonstration of practical skills.

6. ASSESSMENT CRITERIA

Assessment of students' knowledge is carried out in accordance with the current Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsia. ([https://www.vnmue.edu.ua/downloads/other/polog_organiz_ocv_proc\(2026\).pdf](https://www.vnmue.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf))

Type of Assessment	Assessment Criteria / Scale
Ongoing Assessment	According to the traditional grading scale: 5 – “Excellent”, 4 – “Good”, 3 – “Satisfactory”, 2 – “Unsatisfactory”

Assessment of Practical Skills	According to the traditional grading scale
Final Grade of the Academic Discipline	Grade for differential credit: 71–80 points – “Excellent”; 61–70 points – “Good”; 50–60 points – “Satisfactory”; fewer than 50 points – “Unsatisfactory” / Failed.
Overall Assessment for the Academic Discipline	Ongoing academic performance – 72–120 points (conversion of the average traditional grade for practical classes to the 120-point scale): 60% of the final grade for the academic discipline. Final Assessment – 50–80 points: 40% of the final grade for the academic discipline. Individual Assignments– 1–12 points. Total: 122–200 points.

GRADING SCALE: NATIONAL AND ECTS

Total Score for All Learning Activities	ECTS Grade	National Grade: Examination, Course Project (Paper), Practical Training	National Grade: Pass
180–200	A	Excellent	Passed
170–179.99	B	Good	Passed
160–169.99	C	Good	Passed
141–159.99	D	Satisfactory	Passed
122–140.99	E	Satisfactory	Passed
60–121.99	FX	Unsatisfactory, with the possibility of retaking	Failed, with the possibility of retaking
0–59.99	F	Unsatisfactory, with mandatory repetition of the discipline	Failed, with mandatory repetition of the discipline

Criteria for Assessing Students’ Knowledge

Assessment of Oral/Written Responses during Ongoing Assessment

The grade “Excellent” is awarded when a student demonstrates comprehensive knowledge of the topic, illustrating responses with a variety of relevant examples; provides complete, accurate, and clear answers without prompting or leading questions; presents the material without errors or inaccuracies; confidently solves problems and completes practical tasks of varying levels of complexity; and independently generates innovative ideas.

The grade “Good” is awarded when a student demonstrates good knowledge and understanding of the topic and provides correct, coherent, and well-structured answers, although they may not be fully comprehensive. The student answers additional questions correctly and without significant errors; successfully solves problems and completes practical tasks, experiencing difficulties only with the most complex assignments.

The grade “Satisfactory” is awarded when a student demonstrates knowledge of the overall content of the topic and a satisfactory level of understanding. With the help of guiding questions, the student is able to solve modified (simplified) problems; solves problems and completes practical tasks, although experiencing difficulties even with relatively simple assignments; is unable to formulate a coherent and systematic response independently but provides correct answers to direct questions.

The grade “Unsatisfactory” is awarded when a student’s knowledge and skills do not meet the requirements for the grade “Satisfactory”.

The assessment criteria for all other types of students’ academic work are based on the requirements of the Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsya,

([https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc\(2026\).pdf](https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf)) and are specified in the programme of the academic discipline.

Assessment of Students’ Independent Study

Students’ independent study undertaken as part of a topic alongside contact hours is assessed as part of the ongoing assessment of that topic during the relevant practical class.

The maximum number of points a student may receive upon completion of the discipline is 200 points. The minimum passing score is 122 points.

7. METHODOLOGICAL SUPPORT

Teaching and learning materials (lecture notes or extended lecture outlines), thematic plans for lectures, practical classes and independent study, assignments for ongoing assessment, methodological guidelines, and teaching manuals.

8. ACADEMIC DISCIPLINE POLICIES

The completion of learning activities and all academic work within the discipline must comply with the requirements of the Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsya; ([https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc\(2026\).pdf](https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf)), the Regulations on the Organisation of the Educational Process for Higher Education Students Pursuing the Degree of Doctor of Philosophy at National Pirogov Memorial Medical University, Vinnytsya (https://www.vnmu.edu.ua/downloads/other/pologPhD_org.pdf); the Law of Ukraine “On Education” (Article 42); the Law of Ukraine “On Academic Integrity”; and the Code of Academic Integrity of National Pirogov Memorial Medical University, Vinnytsya (https://www.vnmu.edu.ua/downloads/other/kodex_akad_dobr_edit%202026.pdf)

Students are entitled to high-quality educational services and a safe learning environment under martial law, emergency situations and states of emergency; access to up-to-date scientific and educational information; and qualified academic guidance and support in studying the discipline and acquiring practical skills.

The Department’s policy on the provision of educational services is student-centred and is based on the regulatory documents of the Ministry of Education and Science of Ukraine and the Ministry of Health of Ukraine, the University Statute, the procedures governing the provision of educational services, including in emergency situations, as stipulated by the principal regulations and administrative directives governing the organisation of the educational process at National Pirogov Memorial Medical University, Vinnytsya, as well as on the principles of academic integrity.

Academic Integrity. When studying the discipline and completing all types of learning assignments and/or research activities, students must comply with the Law of Ukraine “On Education” (Article 42), the Law of Ukraine “On Academic Integrity”, and the Code of Academic Integrity of National Pirogov Memorial Medical University, Vinnytsya ([University website → General Information → Key Documents → Code of Academic Integrity](#)). In the event of a violation of academic integrity principles, appropriate measures shall be taken in accordance with the applicable regulatory documents.

Compliance with VNMU Internal Regulations and Safety Requirements during Practical Classes. At the first practical class, the instructor provides a safety briefing on appropriate conduct on the Department premises, informs students of the location of the shelter and the evacuation route to the shelter in accordance with the approved evacuation plan, explains the rules of conduct while proceeding to and remaining in the shelter, and provides instructions on all actions stipulated by the

Emergency Response Plan (pursuant to Order No. 505 dated 30 August 2023). In the event of an air raid alert or any other emergency warning signal, the instructor suspends the class. The instructor and students proceed together to the shelter and remain there until the warning signal is cancelled. Once the alert has been lifted, the instructor and students either resume the class in the Department's classrooms or students independently complete the remaining learning material, which is subsequently assessed at the next class.

Requirements for Preparation for Practical Classes

Students are required to participate actively in the educational process: attend classes and come adequately prepared; complete the test tasks related to the current topic in their workbooks and fill in the required diagrams and tables; actively participate in discussions of the class topic; complete all assignments specified in the programme; search for additional information relevant to the topic and present it to their peers.

Students are expected to arrive at classes on time. Late arrival is not permitted in accordance with the Internal Regulations for Students of VNMU. A student who arrives more than 10 minutes late is not admitted to the class and is required to make up the missed class in accordance with the established procedure.

For specialties within Field of Study I "Healthcare and Social Security", students are required to wear a medical coat during practical classes. Students who fail to comply with this requirement are not admitted to the class.

Students are expected to be polite, courteous, and respectful in their interactions with teaching staff, other University employees, fellow students, and other persons studying at VNMU. Students must maintain a quiet and orderly environment and demonstrate appropriate conduct on the Department premises.

In its activities, the Department adheres to the principles of mutual respect and tolerance. Students are expected to uphold the same principles.

Students must comply with safety regulations while on the Department premises.

When working in teaching and research laboratories, students must comply with the applicable safety regulations (published on the website of the Department of Pharmacy). When completing practical assignments, students must keep their workstations clean and orderly and leave them tidy upon completion of the practical work.

While at clinical training sites, students are required to comply with the established therapeutic and protective regime and sanitary and hygiene requirements. Where quarantine restrictions are introduced at a healthcare institution, strict compliance with all applicable requirements is mandatory.

When entering inpatient departments, students must wear a medical coat, cap, and change of footwear. Students must also have a medical mask, gloves, and hand sanitiser with them. Bringing outdoor clothing, outdoor footwear, or bulky personal belongings into inpatient departments is not permitted. Students are strictly prohibited from handling any medical devices, equipment, or instruments without the instructor's permission.

When communicating with patients and their relatives, as well as outside the healthcare institution, students are required to observe ethical and deontological principles and comply with applicable legislation concerning the confidentiality and protection of information. The disclosure or dissemination of patients' medical or personal information by any means, including through social media, verbal communication, or otherwise, is strictly prohibited.

In interactions with healthcare personnel and during discussions as part of the educational process, students are expected to adhere to the principles of tolerance, courtesy, and mutual respect. Inappropriate, disrespectful, or provocative behaviour is not permitted.

Use of Mobile Phones and Other Electronic Devices. The use of mobile phones and other electronic devices during classes is not permitted, except for emergency calls or when such devices are used to present supplementary materials relevant to the topic of the class.

Absence from Classes. Missed classes must be made up in accordance with the procedure established by the current Regulations on the Organization of the Educational Process at National Pirogov Memorial Medical University, Vinnytsya

[https://www.vnmdu.edu.ua/downloads/other/polog_organiz_ocv_proc\(2026\).pdf](https://www.vnmdu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf)), at the times specified in the make-up schedule published on the website of the Department of Pharmacy ([VNMU website](#)), either with the instructor on duty or with the student's regular instructor. Making up a missed class involves completing the assignments related to the topic of the missed class in accordance with the specific requirements of the discipline.

Mastery of lecture topics is assessed during practical classes, seminars (including the assessment of practical skills), and final assessment, in accordance with the Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsya ([https://www.vnmdu.edu.ua/downloads/other/polog_organiz_ocv_proc\(2026\).pdf](https://www.vnmdu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf))

Admission to Final Assessment. The procedure for admission to final assessment in the discipline is set out in the current Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsya ([https://www.vnmdu.edu.ua/downloads/other/polog_organiz_ocv_proc\(2026\).pdf](https://www.vnmdu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf)).

Students are admitted to final assessment provided that they have no outstanding academic requirements: the average grade for ongoing assessment must be at least 3.0 (72 points on the 120-point scale); all final sessions for the content modules must have been completed with a passing grade ("3" or higher); and all missed practical classes must have been made up with a passing grade ("3" or higher). Otherwise, the student must improve their average grade by making up unsatisfactory grades and must make up all missed classes.

Additional Points for Individual Assignments. Students may receive additional points in the discipline for the successful completion of individual assignments, the content of which is published on the Department's website as part of the teaching and learning materials for the discipline. The number of points awarded is determined based on the results of the individual assignment in accordance with the current Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsya. ([https://www.vnmdu.edu.ua/downloads/other/polog_organiz_ocv_proc\(2026\).pdf](https://www.vnmdu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf)).

Resolution of Conflict Situations

In the event of misunderstandings or concerns regarding the quality of educational services, assessment of academic performance, or other conflict situations involving an instructor, students should first raise their concerns directly with the instructor. If the issue remains unresolved, the student has the right to submit an appeal to the Head of the Department in accordance with the Regulations on the Consideration of Appeals from Higher Education Students at National Pirogov Memorial Medical University, Vinnytsya ([VNMU website → General Information → Key Documents](#)).

Students also have the right to contact the student self-government bodies, the administration of the Faculty (Institute), or the University administration, either directly or through the designated feedback channels ("trust boxes"), links and addresses for which are available on the official VNMU website.

The Department recognises that a student-centred approach entails students' responsibility for the conscious and active acquisition of knowledge and for proper compliance with the rules and requirements established by applicable legislation and VNMU regulatory documents. The Department reserves the right to inform the relevant University bodies of any violations committed by students.

Policy on Blended Learning

The organisation of blended learning is governed by the Regulations on the Introduction of Elements of Distance Learning at National Pirogov Memorial Medical University, Vinnytsya ([VNMU website → General Information → Key Documents](#)). The main online learning platforms used for classes are Microsoft Teams and Google Meet.

The procedures for conducting practical classes, lectures, make-up classes, and consultations in the distance learning format are published on the Department's webpage ([VNMU website →](#)

Department of Pharmacy → For Students/Postgraduate Students → Mode of Study → Year of Study → Teaching and Learning Materials).

Communication with the Instructor. Students may contact the instructor via Microsoft Teams chat, messaging applications (Viber, Telegram, WhatsApp), or email, as determined by the instructor, during working hours.

9. LEARNING RESOURCES

Teaching and learning materials for the discipline are available on the Department's website. The materials can be accessed via: [VNMU website → Department of Pharmacy → For Students/Postgraduate Students](#).

LITERATURE

Core Literature for Proceeding practice on drug technology

1. Textbook of industrial pharmacy II / Mrs. Shweta S. Gedam, Shivraj P. Jadhav, Eknath D. Ahire. - Pritam Publications, 2022.- 202p.
2. A Textbook of Industrial Pharmacy I / Dr. Prashant Pingale.- Everest Publishing House, 2022.-485p.
3. Industrial pharmacy - II / Dr. Ashok A. Hajare.- Nirali Prakashan, 2022.-281p.
4. European Pharmacopoeia. 12th Edition / European Directorate for the Quality of Medicines & HealthCare (EDQM). Strasbourg : Council of Europe, 2025.
5. European Pharmacopoeia. 13th Edition / European Directorate for the Quality of Medicines & HealthCare (EDQM). Strasbourg : Council of Europe, 2026.
6. The International Pharmacopoeia. 13th Edition / World Health Organization. Geneva : WHO, 2025.
7. British Pharmacopoeia 2026 : in 6 vol. / Medicines and Healthcare products Regulatory Agency (MHRA). London : TSO, 2025. 4000 p.
8. EudraLex: The Rules Governing Medicinal Products in the European Union. Volume 4: Good Manufacturing Practice / European commission: 22 November 2017. Access: https://ec.europa.eu/health/system/files/2017-11/2017_11_22_guidelines_gmp_for_atmps_0.pdf

Supplementary Literature for Proceeding practice on drug technology

1. The practical course on Industrial Technology of Medicines for students of specialty "Pharmacy"/ Ed. By Doctor of Pharmacy, professor Ruban H.A. - Kharkov: NUPh, 2013.- 298p.
2. Industrial Drug Technology: Tutorial for laboratory classes for students of specialty "Pharmacy"/ Yu.V. Yudina, Yu V. Shmyrova, S.V. Stepanenko, Ie.V. Gladukh, V.I. Chyieshov, A.A. Sichkar, Ye.A. Bezrukaviy, O.S. Kukhtenko. - Kharkov: NUPh: Original, 2012.- 254p.
3. The Theory and Practical Book of Industrial Pharmacy – I / Ketan B. Patil, Paresh A. Patil, Sandip S. Kshirsagar, Narendra B. Patil, 2020. – 207p.

ELECTRONIC RESOURCES

1. University website: [National Pirogov Memorial Medical University, Vinnytsya](#)
2. Department website: [VNMU Departments](#) — Department of Pharmacy
3. University Library website: [VNMU Library](#)

4. National Scientific Medical Library of Ukraine: National Scientific Medical Library of Ukraine
5. World Health Organization: World Health Organization (WHO)
6. Ministry of Health of Ukraine: Ministry of Health of Ukraine
7. Public Health Center of the Ministry of Health of Ukraine: Public Health Center of Ukraine
8. English-language database of medical and biomedical literature: PubMed
9. English-language online resource for physicians and other healthcare professionals: Medscape
10. State Expert Centre of the Ministry of Health of Ukraine: <https://www.dec.gov.ua/>
11. State Service of Ukraine on Medicines and Drug Control: <https://www.dls.gov.ua/>
12. Ukrainian Pharmaceutical Institute of Quality: <http://gmpcenter.org.ua/>
13. British Pharmacopoeia: <https://www.pharmacopoeia.com>
14. United States Pharmacopoeia and National Formulary: <https://online.uspnf.com>
15. The International Pharmacopoeia 13th Edition: <https://digicollections.net/phint>

The course syllabus for the academic discipline " Proceeding practice on drug technology " was discussed and approved at the meeting of the Department of Pharmacy (Minutes dated № 1. "26" 08 2026)

Course Coordinator:

Assoc. Prof., PhD
(Academic Degree, Academic Title)

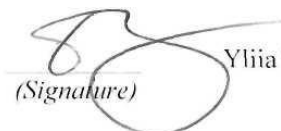


(Signature)

Tetiana VOITENKO

Acting Head of the Department of Pharmacy

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(Academic Degree, Academic Title)



(Signature)

Yliia TOMASHEVSKA