

**Syllabus of the educational component**

**Work placement in Pharmacy based Technology of Drugs**

for applicants for higher education of 2023-2024 year of study \_\_\_\_  
form of education second (master's level) of higher education  
of educational program « Pharmacy (for foreign students) »  
(Educational Program Name)  
in specialty « 226 Pharmacy, industrial pharmacy »  
(Code and Specialty Name)  
field of knowledge « 22 Public Health »  
(Code and Knowledge Field Name)  
training for \_\_\_\_second (master's level) of higher education  
(Higher Educational Level Name)

**TEACHERS**



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1. **Name of higher education institution and department:** National University of Pharmacy, Department of Pharmaceutical Technology of Drugs.

2. **Address department :** Kharkiv, street Valentynivska, 4, 4th floor, tel. 0572-67-91-84.

3. **Website of the department:** <http://atl.nuph.edu.ua/>

4. **Information about teachers:**

**Vyshnevskaya Lilia Ivanivna**

Head of the Department of Pharmacy Technology of Medicines, Doctor of Pharmaceutical Sciences.

Experience of scientific and pedagogical work 32 years

Lectures and teaches practical and laboratory classes in the disciplines "Pharmacy Technology of Medicines", "Technology of Pharmaceutical Medicines", "Biopharmacy", "Technology of Homeopathic Medicines", "Pharmaco-Technological Research of Medicines". Research interests: conducting research in the field of "Development of composition, technology and biopharmaceutical research of drugs based on natural and synthetic raw materials".

**Levachkova Yulia Valentynivna**

Doctor of Pharmaceutical Sciences, Professor of the Drug Technology Department of the National University of Pharmacy. Experience of scientific activity –15 years, experience of scientific and pedagogical activity – 14 years. Reads courses: "Pharmaceutical Drug Technology", "Biopharmacy", "Modeling of scientific research". Research interests: drug technology.

**Semczenko Kateryna Valentynivna**

Doctor of Pharmaceutical Sciences, Associate Professor, 10 years of teaching experience.

She teaches the disciplines "Technology of pharmaceutical drugs", "Biopharmacy", "Homeopathy".

Research interests: conducting research in the field of "Development of composition, technology and biopharmaceutical research of drugs based on natural and synthetic raw materials".

**Buryak Maryna Valeriivna**

PhD (Pharmaceutical Sciences), Associate Professor of the Drug Technology Department of the National University of Pharmacy. Experience of scientific and pedagogical activity – 14 years. Reads courses: "Pharmaceutical Drug Technology", "Pharmacy-based Technology of Drugs", "Biopharmacy", "Modeling of scientific research". Research interests: drug technology.

**Kovalov Volodymyr Viktorovich**

PhD (Pharmaceutical Sciences), Associate Professor of a higher education institution of the Drug Technology Department of the National University of Pharmacy. Experience of scientific activity – 15 years, experience of scientific and pedagogical activity – 11 years. Reads courses: "Pharmacy-based Technology of Drugs", "Biopharmacy", "Methodology and methods of scientific research", "Methodology and methods of scientific analysis", "Modeling of scientific research". Research interests: drug technology.

**Konovalenko Iлона Sergiivna**

Candidate of Pharmaceutical Sciences (PhD), assistant.

Experience of scientific and pedagogical work 6 years.

Conducts classes in the following disciplines: "Pharmacy drug technology", "Pharmacy drug technology", "Fundamentals of pharmaceutical homeopathy", "Biopharmacy".

Scientific interests: development of composition and technology of extemporaneous drugs for non-hormonal therapy of climacteric syndrome, development and research of homeopathic medicines.

5. **Consultations** students of higher education are held before passing the Work placement in Pharmacy based Technology of Drugs, they take place online according to the schedule posted on the website of the department of pharmacy technology.

6. **Annotation of the educational component:** the educational component "Work placement in Pharmacy based Technology of Drugs" is compulsory for the second (master's) level in the specialty "226 Pharmacy, industrial pharmacy". Final control - grade credit.

7. **The purpose of the educational component:** The aim of the study of the educational component "Work placement in Pharmacy based Technology of Drugs" is to consolidate and deepen the professional knowledge of the students of higher education in the theoretical foundations and practical skills of the production of drugs in the conditions of pharmacies.

8. **Competencies according to the educational program:**

**Soft-skills / General competences:**

GC 6. Knowledge and understanding of the subject area and understanding of professional activity.

GC 11. Ability to assess and ensure the quality of performed work.

**Hard-skills / Professional (special) competences (PC):**

PC 14. The ability to organize and carry out the production activities of pharmacies for the manufacture of medicinal products in various dosage forms according to the prescriptions of doctors and orders of medical institutions, including the justification of technology and the selection of auxiliary materials in accordance with the rules of Good Pharmacy Practice (GPP).

**9. Program learning outcomes :**

PLO 1. To carry out professional activities in social interaction based on humanistic and ethical principles; to identify future professional activities as socially significant for human health.

PLO 2. To apply knowledge of general and professional disciplines in professional activities.

PLO 3. To adhere to the norms of sanitary and hygienic regime and safety requirements in carrying out professional activities.

PLO 4. To demonstrate the ability to independently search, analyze and synthesize information from various sources and use these results to solve typical and complex specialized tasks of professional activity.

PLO 12. To analyze the information obtained as a result of scientific research, summarize, systematize and use it in professional activities.

PLO 26. To choose rational technology, to make medicines in various dosage forms according to the prescriptions of doctors and orders of medical institutions, to issue them before release. To perform technological operations: weigh, measure, dose a variety of medications by weight, volume, etc. To develop and draw up technological documentation for the manufacture of medicines in pharmacies.

**10. Status of the educational component:** obligatory

**11. Prerequisites of the educational component:** the educational component is based on the study of biophysics, general and inorganic chemistry, organic chemistry, physical and colloidal chemistry, biology with the basics of genetics, pharmaceutical botany, pharmaceutical drug technology, industrial drugs technology.

**12. Volume of the educational component :** 4,5 credits EKTC: 135 hours.

**13. Organization of training:**

**Teaching format of the educational component:** practical independent work of higher education in the conditions of pharmacies.

**Content of the educational component:**

Content module 1. Practical implementation of the main provisions of the pharmacy technology of drugs	Materials of the educational and methodological complex
<i>Topic 1. Getting to know the premises and equipment of the pharmacy. Analysis of requirements of good pharmacy practice for premises and equipment of the pharmacy.</i>	<a href="http://atl.nuph.edu.ua/">http://atl.nuph.edu.ua/</a>  <a href="https://pharmel.kharkiv.edu/moodle/course/view.php?id=1132">https://pharmel.kharkiv.edu/moodle/course/view.php?id=1132</a>
<i>Topic 2. Normative documents regulating the production activity of the pharmacy. Work with prescriptions for extemporaneous medicinal products.</i>	
<i>Topic 3. Preparation of non-sterile and sterile extemporaneous medicinal products:</i> <i>- preparation of solid extemporaneous medicines;</i> <i>- preparation of liquid extemporaneous medicines;</i> <i>- preparation of soft extemporaneous medicines;</i> <i>- preparation of extemporaneous medicines in aseptic conditions.</i>	
<i>Topic 4. Preparation of internal pharmacy preparations, packaging, repackaging. Technological documentation of the production department of the pharmacy.</i>	
<i>Topic 5. Packaging, labeling and storage conditions of medicines. Stability of prepared extemporaneous medicines.</i>	
<b>Semester credit from module 1 - grade credit</b>	

**14. Types and forms of control**

Assessment for higher education applicants is carried out on a 100-point scale:

*Current control:* verification of the passage of Work placement in Pharmacy on the basis of a pharmacy institution and reception and verification of reporting documentation from industrial pharmaceutical practice on the technology of drugs (quality and completeness of filling out the workbook, analysis of the quality of the passage of practice reflected in the report), computer testing (maximum 60 points);

*Semester control:* in the form of a differentiated semester credit after the completion of Work placement in Pharmacy, during the first week of theoretical training. Completion of computer testing – 40 tests (maximum 40 points);

*Conditions of admission to the semester control:* Students of higher education are admitted to the semester control who have completed all types of work provided for in the curriculum and have scored at least the minimum number of points (36 points) when studying the module.

**15. Evaluation system for the educational component:*****The evaluation system for the educational component:***

is carried out after the completion of the practical implementation of the module in the form of a semester grade credit, evaluated on a 100-point, four-point differentiated scale ("excellent", "good", "satisfactory", "unsatisfactory") and on the ECTS scale.

*Points from education components are calculated according to the following ratio :*

Kinds assessment	Maximum quantity points (% of quantity points for the module - for content modules )
<b>Content module 1. Practical implementation of the main provisions of the pharmacy technology of drugs</b>	
- verification of reporting documentation on production pharmaceutical practice on the technology of drugs of pharmacy production;	60 ( 60 %)
- - writing test tasks (40 test tasks)	40 (40%)
Semester control of the module 1	100

**The self-study of students of higher education is evaluated during the current control and during the control of the content module.**

**16. Policies of the educational component:**

*Academic Integrity Policy.* Writing off when evaluating the success of a student of higher education during the control measures at the semester control is prohibited (including using mobile devices). Identifying the signs of an academic student of education is a reason for her not being enrolled by the teacher.

*Practice attendance policy.* The student of higher education is obliged to undergo practice "Regulations on practical training of students of higher education at the National Pharmaceutical University" (POL A2.2-40-022 Edition 04, Date of introduction: 02.01.2023) according to the schedule of the educational process, to adhere to ethical norms of behavior .

*Policy regarding deadlines, working out, rating increase, liquidation of academic debt.* The completion of missed classes by a student of higher education is carried out in accordance with the POL "Regulations on the completion of missed classes by students and the procedure for eliminating academic differences in curricula at the National Pharmaceutical University" in accordance with the schedule for making up missed classes established at the department. Increasing the rating and liquidating academic debt from the educational component is carried out by the students in accordance with the procedure specified in the POL "On the procedure for evaluating the results of training of students of higher education at the National Pharmaceutical University". Applicants of higher education are obliged to comply with all

deadlines set by the department for the completion of written works from the educational component. Works that are submitted late without valid reasons are assessed at a lower grade - up to 20% of the maximum number of points for this type of work.

*Policy on appeals of assessment from the educational component (appeals).* Applicants of higher education have the right to contest (appeal) the evaluation of the educational component obtained during control measures. The appeal is carried out in accordance with the POL "Regulations on appealing the results of the semester control of knowledge of students of higher education at the National Pharmaceutical University".

#### 17. Information and educational and methodological support of the discipline:

<b>Main literature</b>	<ol style="list-style-type: none"> <li>1. Pharmacy — based technology of drugs : the manual for applicants of higher education / O. I. Tykhonov , T. G. Yarnykh, O. A. Rukhmakova, G. B. Yuryeva; ed. by O. I. Tykhonov and T. G. Yarnykh. - Kharkiv : NUPh : Golden Pages, 2019. - 488 p.</li> <li>2. Workbook for Pharmacy-based Technology of Drugs: A tutorial for the 3-rd year English-speaking applicants of higher education of "Pharmacy" specialty / T. G. Yarnykh, O. I. Tykhonov, O. A. Rukhmakova, M. V. Buryak, V. V. Kovalyov, I. V. Herasymova – Kh.: NUPh, 2020. – 149 p.</li> <li>3. Workbook for preparation to the licensed examination "KROK-2" in pharmacy-based technology of drugs: for English-speaking applicants of higher education of specialty "Pharmacy": Practical aids. For individual work / T. G. Yarnykh, O. A. Rukhmakova, V. V. Kovalyov, M. V. Buryak – Kh.: NUPh, 2017. – 56 p.</li> <li>4. Tests. Pharmacy-based technology of drugs: A handbook for the out-of-classwork of English applicants/ T. G. Yarnykh, O. I. Tykhonov, O. A. Rukhmakova, G. B. Yuryeva, M. V. Buryak, V.V.; ed. by T.G. Yarnykh. – Kh.: NUPh, 2019. – 156 p.</li> <li>5. Handbook to Laboratory Classes in Pharmacy-based Technology of Drugs : for English applicants of higher education of "Pharmacy" speciality / Yarnykh T. G., Rukhmakova O. A., Yuryeva A. B., ed. by T.G. Yarnykh. – Kh.: NUPh, 2021. – 156 p.</li> </ol>
<b>Additional literature for in-depth study of the educational component</b>	<ol style="list-style-type: none"> <li>1. Державна Фармакопея України / ДП «Український науковий фармакопейний центр якості лікарських засобів». 2-ге вид. Харків : ДП «Український науковий фармакопейний центр якості лікарських засобів», 2015. Т. 1. 1128 с.</li> <li>2. Державна Фармакопея України / ДП «Український науковий фармакопейний центр якості лікарських засобів». 2-ге вид. Харків : ДП «Український науковий фармакопейний центр якості лікарських засобів», 2014. Т. 2. 724 с.</li> <li>3. Державна Фармакопея України / ДП «Український науковий фармакопейний центр якості лікарських засобів». 2-ге вид. Харків : ДП «Український науковий фармакопейний центр якості лікарських засобів», 2015. Т. 3. 732 с.</li> <li>4. Про затвердження правил виробництва (виготовлення) лікарських засобів в умовах аптеки : наказ МОЗ України від 17.10.12 р. № 812. Офіційний вісник України. 2012. № 87. 28 с.</li> <li>5. Стандарт МОЗ України «Вимоги до виготовлення нестерильних лікарських ЗАСОБІВ в умовах аптек» СТ-Н МОЗУ 42 - 4.5 до: 2015 // За ред. проф. О. І. Тихонова и проф. Т.Г. Ярних. - Київ, 2015. - 109 с. (Затверджено наказом МОЗ України № 398 від 01.07.2015 р.).</li> <li>6. Стандарт МОЗ України «Вимоги до виготовлення стерильних и асептичних лікарських ЗАСОБІВ в умовах аптек» СТ-Н МОЗУ 42 - 4.6 до: 2015 // За ред. проф. О.І. Тихонова и проф. Т.Г. Ярних. - Київ, 2015. - 76 с. (Затверджено наказом МОЗ України № 398 від 01.07.2015 р.).</li> <li>7. John F Marriott, Keith A Wilson, Christopher A Langleyv, Dawn Belcher Pharmaceutical Compounding and Dispensing. - Published by the</li> </ol>

	<p>Pharmaceutical Press. – 2010. – 288 p.</p> <p>8. USP Pharmacists' Pharmacopeia. – II ed. – Rockville. The United State Pharmacopeial, Inc., 2008. – 1519 p.</p> <p>9. <a href="https://pharmel.kharkiv.edu/moodle/course/view.php?id=1094">https://pharmel.kharkiv.edu/moodle/course/view.php?id=1094</a></p>
<b>Current electronic information resources (magazines, websites, etc.) for in-depth study of the educational component</b>	<p>1. Ministry of Health of Ukraine [Electronic resource]: official website. - Access mode: <a href="http://www.moz.gov.ua">www.moz.gov.ua</a> - (date of application 09/26/18).</p> <p>2. National Pharmaceutical University [Electronic resource]: Scientific library of the National Pharmaceutical University. – Access mode: <a href="http://lib.nuph.edu.ua">http://lib.nuph.edu.ua</a> (access date 09/26/18).</p> <p>3. National Pharmaceutical University. Department of Medicine Technology [Electronic resource]: website of the Department of Medicine Technology. – Access mode: <a href="http://tl.nuph.edu.ua">http://tl.nuph.edu.ua</a> (date of application 09/26/18).</p> <p>4. Electronic archive of the library of the National Academy of Sciences of Ukraine. <a href="http://lib.nuph.edu.ua">http://lib.nuph.edu.ua</a>; e- mail <a href="mailto:library@nuph.edu.ua">library@nuph.edu.ua</a></p> <p>5. Educational portal <a href="http://pharmel.kharkiv.edu">http://pharmel.kharkiv.edu</a> - the center of distance technologies of the National Academy of Sciences</p>
<b>Moodle distance learning system</b>	<a href="https://pharmel.kharkiv.edu/moodle/course/view.php?id=2697">https://pharmel.kharkiv.edu/moodle/course/view.php?id=2697</a>

**18. Technical and software provision of educational components:** material and technical support of the production practice base, computers for testing, multimedia device, screen.