

SYLLABUS OF THE EDUCATIONAL COMPONENT



WORK PLACEMENT IN PHARMACY BASED TECHNOLOGY OF DRUGS

for students of higher education in the 5th year of full-time education

Educational program "Pharmacy"

Specialties 226 "Pharmacy, industrial pharmacy"

Fields of knowledge 22 "Health care"

Second (master's) level of higher education

TEACHERS

Information about the teacher

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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. **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 Pharmaceutical Technology of Drugs.
5. **Abstract 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.
6. **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.
7. **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).
8. **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.
9. **Status of the educational component:** obligatory
10. **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.
11. **Scope of the educational component :** 4,5 credits ECTS: 135 hours.

12. Organization of training:

Teaching methods :

- *explanatory (informational and reproductive) method:* Lecture-based learning - video materials;
- *problem teaching:* Problem-based learning – problem seminar/webinar; Case-based learning - case method;
- *partial search method:* Project-based learning - project method.

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>	http://atl.nuph.edu.ua/ https://pharmel.kharkiv.edu/moodle/course/view.php?id=1132
<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: - preparation of solid extemporaneous medicines; - preparation of liquid extemporaneous medicines; - preparation of soft extemporaneous medicines; - 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>	
Semester credit from module 1 - grade credit	

Organization of independent work:

Independent work includes studying the topics of the educational component and completing tasks on these topics in order to consolidate the theoretical material.

13. Types and forms of control

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 – 120 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.

14. 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.

Evaluation of mastering the topics of the educational component of practice:

<i>Subject number of the educational component</i>	<i>Maximum of points for the topic</i>	<i>Distribution of the maximum of points per topic by type of work</i>	<i>Types of work for which the student receives points</i>
<i>Змістовий модуль 1</i>			
<i>Topic 1.</i>	12	12	the quality and completeness of filling out the workbook, the analysis of the quality of practice, reflected in the report
<i>Topic 2.</i>	12	12	the quality and completeness of filling out the workbook, the analysis of the quality of practice, reflected in the report
<i>Topic 3.</i>	12	12	the quality and completeness of filling out the workbook, the analysis of the quality of practice, reflected in the report
<i>Topic 4.</i>	12	12	the quality and completeness of filling out the workbook, the analysis of the quality of practice, reflected in the report
<i>Topic 5.</i>	12	12	the quality and completeness of filling out the workbook, the analysis of the quality of practice, reflected in the report
<i>Total points for content module 1:</i>		<i>60</i>	
<i>Total points for the module:</i>		<i>60</i>	

The study of the educational component by students of higher education is possible with the help of non-formal education. Instead of performing types of work on any topic of the educational component, the following types of work of a student of higher education may be counted:

–participation in conferences, seminars, webinars on the topic of the educational component (with the preparation of essays, abstracts of reports, information messages, etc., which is confirmed by the program of the event, or abstracts of reports, or a corresponding certificate).

Points that are added (credited) to the grade in the discipline for the performance of certain types of work (preparation of a report, presentations on a topic 1 - 5 points, defense of a student scientific work 10 points, speech at a conference 5 points, poster presentation at a conference 4 points, theses of reports 3 points); completion of online courses in programs corresponding to the content of the educational component on educational platforms with confirmation by a certificate (maximum 5 points).

The total score for the discipline cannot exceed 100 points.

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)
Content module 1. Practical implementation of the main provisions of the pharmacy technology of drugs	
- verification of reporting documentation on production pharmaceutical practice on the technology of drugs of pharmacy production;	60 (60 %)
- - writing test tasks (120 test tasks)	40 (40%)
Semester control of the module 1	100

The independent work of students of higher education is evaluated during the current control and during the control of the content module.

Evaluation of independent work of the student of education:

during the current control: verification of reporting documentation on of Work placement in Pharmacy based Technology of Drugs (quality and completeness of filling out the workbook, practice journal, practice report)

during semester module control: computer testing includes theoretical questions for independent work

Evaluation scale of the semester credit:

When studying the educational component, several assessment scales are used: a 100-point scale, an undifferentiated ("passed", "not passed") two-point scale and the ECTS rating scale. The results are converted from one scale to another according to the table.

Scale assessment: national and ECTS

Sum points by all types of educational activities	ECTS assessment	Rating by national scale	
		for the exam course the project (work), practice	for credit
90 - 100	A	perfectly	counted
82-89	B	fine	
74-81	C		
64-73	D	satisfactorily	
60-63	E		
35-59	FX	unsatisfactorily with the possibility repeated drafting	not counted with the possibility repeated drafting
0-34	F	unsatisfactorily with mandatory repeated study plastic discs	not counted with mandatory repeated study of the discipline

15. Policies of the educational component:

Academic Integrity Policy. It is based on the principles of academic integrity stated in the POL "On measures to prevent cases of academic plagiarism at the National Institute of Public Health ". 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".

As part of the academic freedom of the teacher, instead of performing types of work on the subject of the educational component, it is possible to enroll in the non-formal education of a student of higher education.

16. Information and educational and methodological support of the discipline:

Main literature	<ol style="list-style-type: none"> 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. 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. 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. 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. 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.
Additional literature for in-depth study of the educational component	<ol style="list-style-type: none"> 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. 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. 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.

	<ol style="list-style-type: none"> 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. 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.). 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.). 7. John F Marriott, Keith A Wilson, Christopher A Langleyy, Dawn Belcher Pharmaceutical Compounding and Dispensing. - Published by the Pharmaceutical Press. – 2010. – 288 p. 8. USP Pharmacists' Pharmacopeia. – II ed. – Rockville. The United State Pharmacopeial, Inc., 2008. – 1519 p.
Current electronic information resources (magazines, websites, etc.) for in-depth study of the educational component	<ol style="list-style-type: none"> 1. Ministry of Health of Ukraine [Electronic resource]: official website. - Access mode: www.moz.gov.ua - (date of application 09/26/18). 2. National Pharmaceutical University [Electronic resource]: Scientific library of the National Pharmaceutical University. – Access mode: http://lib.nuph.edu.ua (access date 09/26/18). 3. National Pharmaceutical University. Department of Medicine Technology [Electronic resource]: website of the Department of Medicine Technology. – Access mode: http://tl.nuph.edu.ua (date of application 09/26/18). 4. Electronic archive of the library of the National Academy of Sciences of Ukraine. http://lib.nuph.edu.ua; e- mail library@nuph.edu.ua 5. Educational portal http://pharmel.kharkiv.edu - the center of distance technologies of the National Academy of Sciences
Moodle distance learning system	https://pharmel.kharkiv.edu/moodle/course/view.php?id=2736

17. Technical and software provision of educational components:

material and technical support of the practice base, computers for testing, multimedia device, screen.

Material and technical support of the production practice base, personal computer VT Computers system unit CPU INTEL Pentium G4400 (2016), laptop (2018), Misubishi EX-10 multimedia projectors (2006), LG TVs (2017)). Interactive board.

Application software and online services: a set of services for organizing online and distance learning - Google Workspace for Education Standard, license type - free license for education, perpetual; program for organizing ZOOM video conferences, license type - free license for education for 1 year with the possibility of extension; modular object-oriented dynamic learning environment MOODLE 3.9.8 license type - Open Source.