

MINISTRY OF HEALTH PROTECTION OF UKRAINE
ODESSA NATIONAL MEDICAL UNIVERSITY

Department of general and clinical pharmacology and pharmacognosy


Vice-rector for scientific and pedagogical work
Eduard BURYACHEVSKY
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APPROVED

WORKING PROGRAM OF EDUCATIONAL DISCIPLINE
"INDUSTRIAL PRACTICE – CLINICAL PHARMACY"

Level of higher education: second (master's)

Field of knowledge: 22 "Healthcare"

Specialty: 226 "Pharmacy. Industrial practice"

Specialization: 226.01 "Pharmacy"

Educational and professional program: Pharmacy. Industrial pharmacy

The work program is based on the educational and professional program "Pharmacy, Industrial Pharmacy" for training specialists of the second (master's) level of higher education in the specialty 226 "Pharmacy, Industrial Pharmacy" specialization 226.01 "Pharmacy" field of knowledge 22 "Healthcare", approved by the Academic Council of ONMedU (minutes No. 10 dated June 27, 2024) and the educational and professional program "Pharmacy, Industrial Pharmacy" for training specialists of the second (master's) level of higher education in the specialty 18 "Pharmacy (by specializations) specialization 18.01 "Pharmacy" field of knowledge I "Healthcare and Social Security", approved by the Academic Council of ONMedU (minutes No. 8 dated April 24, 2025).

Developers:

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The working program was approved at the meeting of the Department of General and Clinical Pharmacology and Pharmacognosy Protocol No. 1 dated 08/28/2025

Head of the Department



Yaroslav ROZHKOVSKY

Agreed with the guarantor of the OPP



Liana UNHURYAN

Approved by the Subject Cycle Methodological Commission for Pharmaceutical Disciplines of ONMedU Protocol No. 1 dated 08/29/2025

Chairman of the Subject Cycle Methodological Commission for Pharmaceutical Disciplines of ONMedU



Nataliya FIZOR

Reviewed and approved at the meeting of the Department _____

Protocol No. of « « 20

Head of Department _____

Reviewed and approved at the meeting of the Department _____

Minutes No. of « « 20

Head of Department _____

1. Description of the discipline:

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline		
The total number of: Credits: 4 Hours: 120	Field of knowledge 22 "Health care"	<i>Full-time education</i> <i>Mandatory discipline</i>		
		<i>Year of training:</i>	5	
	<i>Semester</i>	X		
	Specialty 226 "Pharmacy. Industrial pharmacy" Specialization 226.01 "Pharmacy"	<i>Lectures</i>	0 hours	
		<i>Practical classes</i>	80 hours	
		<i>Individual work</i>	40 hours	
		<i>The form of the final control is</i>	<i>Differential test</i>	
Level of higher education second (master's)				

2. The purpose and tasks of the educational discipline, competences, program learning outcomes.

The purpose of the discipline is to consolidate the theoretical knowledge of clinical pharmacy and acquire practical skills in their use in the process of carrying out pharmaceutical care for patients and pharmacy visitors.

The main tasks of the study of the discipline are: familiarization with the work of the in-patient departments and pharmacy establishments of the basic medical-preventive institution, the main types of medical and special documentation; - application of the principles of medical and pharmaceutical ethics and deontology in medical and pharmaceutical activities; - analysis of clinical and pharmaceutical aspects of the rational choice of the drug for a particular patient; - formation of the motivated needs of future pharmacists to systematically update their knowledge and creatively apply them in practice; - acquisition of pharmaceutical care skills during the release of OTC drugs; - determination of the conditions for the rational use of prescription drugs, consultations on issues of compatibility with food, alcohol, other drugs, dosage regimen, rules for the use of certain dosage forms; - acquisition of skills of an individual approach to each patient, taking into account the age criterion, severity of the disease.

The process of studying the discipline is aimed at forming elements of the following competencies:

General (GC):

GC01. Ability to think abstractly, analyze and synthesize, learn and be modernly educated.

GC02. Knowledge and understanding of the subject area and understanding of professional activity.

GC03. Ability to communicate in the national language both orally and in writing.

GC04. The ability to communicate in a foreign language (mainly English) at a level that ensures effective professional activity.

GC05. The ability to evaluate and ensure the quality of the work performed.

GC06. Ability to work in a team.

GC07. The ability to realize one's rights and responsibilities as a member of society; to realize the values of a civil (free democratic) society and the need for its sustainable development, the rule of law, the rights and freedoms of a person and a citizen in Ukraine.

GC08. The ability to preserve and multiply 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 technologies, to use various types and forms of motor activity for active recreation and leading a healthy lifestyle.

GC09. Ability to use information and communication technologies.

GC10. The ability to make decisions and act in accordance with the principle of inadmissibility of corruption and any manifestations of dishonesty

Professional, special (PC):

PC01. Ability to integrate knowledge and solve complex pharmacy problems in broad or multidisciplinary contexts.

PC02. The ability to collect, interpret and apply data necessary for professional activity, research and implementation of innovative projects in the field of pharmacy.

PC03. Ability to solve pharmacy problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility.

PC04. The ability to clearly and unambiguously convey one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to people who are studying.

PC07. The ability to carry out sanitary and educational work among the population for the purpose of prevention of common diseases, prevention of dangerous infectious, viral and parasitic diseases, as well as for the purpose of promoting timely detection and support of adherence to the treatment of these diseases according to their medico-biological characteristics and microbiological features.

PC08. Ability to provide consultation on prescription and non-prescription medicines and other pharmacy products; pharmaceutical care during the selection and sale of medicines of natural and synthetic origin by assessing the risk/benefit ratio, compatibility, taking into account biopharmaceutical, pharmacokinetic, pharmacodynamic and physicochemical and chemical features, indications/contraindications for use, guided by data on the health status of a particular patient.

PC09. Ability to provide pre-medical assistance to the sick and injured in extreme situations and emergencies.

PC10. Ability to monitor the effectiveness and safety of the use of medicines by the population according to data on their clinical and pharmaceutical characteristics.

PC13. Ability to organize the activities of a pharmacy to provide the population and health care institutions with medicines and other pharmacy products and to implement appropriate reporting and accounting systems in them, to carry out commodity analysis, administrative paperwork taking into account the requirements

of pharmaceutical legislation.

PC15. Ability to analyze socio-economic processes in pharmacy, forms, methods and functions of the pharmaceutical supply system for the population and its components in world practice, indicators of need, effectiveness and accessibility of pharmaceutical care under conditions of medical insurance and reimbursement of the cost of medicines.

Program learning outcomes (PLO):

PLO01. Have and apply specialized conceptual knowledge in the field of pharmacy and related fields, taking into account modern scientific achievements.

PLO02. Critically understand scientific and applied problems in the field of pharmacy.

PLO03. Have specialized knowledge and skills/skills for solving professional problems and tasks, including for the purpose of further development of knowledge and procedures in the field of pharmacy.

PLO04. Communicate freely in the national and English languages orally and in writing to discuss professional problems and results of activities, presentation of scientific research and innovative projects.

PLO05. To assess and ensure the quality and efficiency of activities in the field of pharmacy.

PLO06. Develop and make effective decisions to solve complex/complex problems of pharmacy personally and based on the results of joint discussion; formulate the goals of one's own activity and the activity of the team, taking into account public and industrial interests, the general strategy and existing limitations, determine the optimal ways to achieve goals.

PLO08. Develop and implement innovative projects in the field of pharmacy, as well as related interdisciplinary projects, taking into account technical, social, economic, ethical, legal and environmental aspects.

PLO09. Formulate, argue, clearly and specifically convey 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.

PLO10. Conduct sanitary and educational work among the population for the purpose of prevention and in the event of outbreaks of dangerous infectious, viral and parasitic diseases.

PLO11. Determine the advantages and disadvantages of medicines of natural and synthetic origin of various pharmacological groups, taking into account their chemical, physicochemical, biopharmaceutical, pharmacokinetic, pharmacodynamic features and type of dosage form. Recommend to consumers medicines and other products of the pharmacy range with the provision of advisory assistance and pharmaceutical care.

PLO12. Provide home medical care to patients in emergency conditions and victims in extreme situations.

PLO13. Record cases of side effects when using medicines of natural and synthetic origin; evaluate factors that may affect the processes of absorption, distribution, deposition, metabolism and excretion of medicines and are determined by the condition and characteristics of the human body and the pharmaceutical characteristics of medicines.

PLO18. Use data from the analysis of socio-economic processes in society to provide pharmaceutical care to the population, determine the effectiveness and accessibility of pharmaceutical care under conditions of medical insurance and reimbursement of the cost of medicines.

Expected results of studying for discipline:

As a result of studying the academic discipline, the higher education student must:

Know: - the main operating orders, normative documents of the Ministry of Health of Ukraine and in the world regarding the reception of prescriptions, the release of drugs from the pharmacy;

- modern assortment and classification of drugs;
- list and nomenclature of OTC drugs in Ukraine; rules of OTC withdrawal;
- features of branded and generic drugs, the concept of generic and therapeutic substitution of drugs;
- typical clinical symptoms of the most common diseases requiring mandatory medical intervention;
- a list of pathological conditions in which responsible self-treatment is possible;
- the basic principles of symptomatic pharmacotherapy of states in which responsible self-treatment is possible;
- the principles of collecting a patient's request, collecting and differentiating complaints, collecting anamnesis of the disease, anamnesis of life, medical anamnesis;
- algorithm of choice of optimal OTC drugs for the treatment of conditions in which responsible self-medication is possible, the principles of pharmaceutical care of pharmacy visitors and inpatient patients;
- rules of labor protection, safety, sanitary and epidemiological regime when working in stationary departments and pharmacies.

Be able to: - adhere to the provisions of pharmaceutical ethics and deontology; to participate in the coordination of a set of tasks related to the relationship between a physician, a pharmacist and a patient;

- identify registered in Ukraine with the Ministry of Health by means of an international, trade, chemical name for their attribution to a certain pharmacological or pharmacotherapeutic group;
- use normative and reference literature on drugs;
- on the basis of the letters of medical appointments, to analyze the rationality of choosing the optimal dosage form, dosage, the dose of the medication and the term of their application;
- to prepare information reports for doctors about traditional and new drugs, their peculiarities, methods of rational use;
- to inform doctors on the peculiarities of pharmacodynamics and pharmacokinetics of new drugs coming to the pharmacy network of Ukraine and of world;
- to carry out pharmaceutical care of patients, to advise patients and their members on the issues of rational use of prescription and OTC drugs of different groups: manifestations of clinical action, the way and time of admission, interaction with food, manifestations of side effects, etc.

3. Content of the discipline

Topic 1. Familiarity with the structure and principles of work of the basic multidisciplinary medical-preventive institution, in-patient departments, diagnostic units, pharmacy establishments located on the basis of the hospital, equipment of the workplace of the pharmacist. Familiarity with the basic

principles of medical and pharmaceutical ethics and deontology, the behavior of pharmacist with a doctor, nurse, patient, visitor to the pharmacy, practical attachment of the skills acquired. Principles of consulting and informational work in the department, in the pharmacy.

Topic 2. Basic methods of clinical examination of patients. Types of medical documentation. Medical history.

Determination and value of subjective, physical and laboratory-instrumental methods of research of patients. The main types of medical and special pharmaceutical documentation and the practical significance of the information they contain for the doctor and pharmacist. Definition of the term "anamnesis", special value of information about the use of medicines for a doctor and pharmacist.

Topic 3. Analysis of clinical and pharmaceutical aspects of the use of drugs for the treatment of diseases of the cardiovascular system. Treatment of the most important symptoms in cardiac and vascular diseases. Acquiring skills for measuring blood pressure, palpation of heart rate, heart rate. Supervision of patients, filling in diaries.

Topic 4. Pharmaceutical care of patients with pathology of the organs of the cardiovascular system, the formation of practical skills, informing patients about the conditions for the rational and safe use of drugs in the department and pharmacy.

Topic 5. Analysis of clinical and pharmaceutical aspects of the use of drugs for the treatment of respiratory system diseases.

Treatment of the most important symptoms in the pathology of the upper and lower respiratory tract. Acquiring the skills of determining the frequency of breathing, palpation of the chest. Supervision of patients, filling in diaries (4 hours).

Topic 6. Pharmaceutical care of patients with respiratory pathology, the formation of practical skills, informing patients about the conditions for the rational and safe use of medicines in the conditions of the department and the pharmacy.

Acquisition of pharmaceutical care skills at the release of prescription and non-prescription drugs for symptomatic treatment of cough, colds, throat pain, fever.

Topic 7. Analysis of clinical and pharmaceutical aspects of the use of drugs for the treatment of diseases of the gastrointestinal tract and hepato-biliary system. Treatment of the most important symptoms in the pathology of the

digestive tract. Acquiring skills for examination of the tongue, oral cavity, palpation of the abdominal cavity. Supervision of patients, filling in diaries.

Topic 8. Pharmaceutical care of patients with pathology of digestive organs, the formation of practical skills, informing patients about the conditions for the rational and safe use of drugs in the department and pharmacies.

Acquisition of pharmaceutical care skills in the release of prescription and non-prescription drugs for symptomatic treatment of heartburn, flatulence, constipation, diarrhea, nausea.

Topic 9. Analysis of clinical and pharmaceutical aspects of the use of drugs for the treatment of diseases of the urinary system. Treatment of the most important symptoms in the pathology of the kidneys and urinary tract. Acquiring skills of macroscopic examination of urine, palpation of the kidneys. Supervision of patients, filling in diaries.

Topic 10. Pharmaceutical care of patients with urinary tract pathology, the formation of practical skills, informing patients about the conditions of rational and safe use of drugs in the conditions of the department and the pharmacy.

Acquisition of pharmaceutical care skills at the release of prescription and non-prescription drugs for symptomatic treatment of dysuria, headache, arthritis pain.

Topic 11. Analysis of clinical and pharmaceutical aspects of the use of drugs for the treatment of skin diseases. Pharmaceutical care of patients with skin pathology, formation of practical skills, informing patients about the conditions of rational and safe use of drugs in the conditions of the department and pharmacy.

Acquisition of pharmaceutical care skills when dispensing prescription and non-prescription drugs for the symptomatic treatment of itching, herpetic lesions of the skin and mucous membranes.

Topic 12. Analysis of clinical and pharmaceutical aspects of the use of drugs for the treatment of diseases of the nervous system. Pharmaceutical care of patients with nervous system pathology, formation of practical skills, informing patients about the conditions of rational and safe use of drugs in the conditions of the department and pharmacy.

Acquisition of pharmaceutical care skills when dispensing prescription and non-prescription drugs for the symptomatic treatment of headache, dizziness, vestibular disorders.

Topic 13. Analysis of clinical and pharmaceutical aspects of the use of drugs for the treatment of ENT diseases. Pharmaceutical care of patients with ENT pathology, the formation of practical skills, informing patients about the conditions of rational and safe use of drugs in the department and pharmacy.

Acquisition of pharmaceutical care skills when dispensing prescription and non-prescription drugs for the symptomatic treatment of headache, fever, sore throat, runny nose.

Differential test.

4. STRUCTURE OF THE DISCIPLINE - "INDUSTRIAL PRACTICE IN CLINICAL PHARMACY AND PHARMACEUTICAL CARE"

Topic	Lectures	Practical classes	IWS	In all
1. Familiarization with the structure of the tour and the principles of multidisciplinary therapeutic-preventive maintenance stationary departments diagnostic units pharmacy establishments that have settled down on the basis of the hospital, equipment the workplace of the pharmacist. Familiarize yourself with the main ones the principles of medical and pharmaceutical ethics and deontology, behavior of the pharmacist with a doctor, a nurse, ill patient pharmacy practical fixing their skills. Principles consulting information work in a department, in a pharmacy.	0	6	2	8
2. Basic clinical methods examination of patients. Types of medical documentation. Medical history.	0	6	2	8
3. Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of cardiovascular system.	0	6	2	8
4. Pharmaceutical care of patients with pathology of organs cardiovascular system, the formation of practical	0	6	2	8

skills, informing conditions for patients rational and safe use of drugs in conditions departments and pharmacies.				
5. Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of respiratory system.	0	6	2	8
6. Pharmaceutical care of patients with pathology of respiratory organs, the formation of practical skills, informing for patients about rational and safe use of drugs in conditions of departments and pharmacies.	0	6	2	8
7. Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of GIT and hepato-biliar system.	0	6	2	8
8. Pharmaceutical care of patients with pathology of digestion organs, formation of practical skills, informing patients about rational and safe use of drugs in conditionss of department and pharmacy.	0	6	2	8
9. Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of urinary tract.	0	6	2	8
10. Pharmaceutical care of patients with pathology of urinary organs, formation of practical skills, informing patients about rational and safe use of drugs in conditionss of department and pharmacy.	0	6	2	8
11. Analysis of clinical and pharmaceutical aspects of the use of drugs for the treatment of skin diseases. Pharmaceutical care of patients with skin pathology, formation of practical skills, informing patients about the conditions of rational and safe use of drugs in conditions of the department and pharmacy. Acquisition of pharmaceutical skills when dispensing prescription and	0	6	2	8

prescription drugs for the symptomatic treatment of itching, herpetic lesions of the skin and mucous membranes.				
12. Analysis of clinical and pharmacological aspects of the use of drugs for the treatment of diseases of the nervous system. Pharmaceutical care of patients with nervous system pathology. Formation of practical skills, informing patients about the conditions of rational and safe use of drugs in the conditions of the department and pharmacy. Acquisition of pharmaceutical skills when dispensing prescription and over-the-counter drugs for the symptomatic treatment of headache, dizziness, vestibular disorders.	0	6	2	8
13. Analysis of clinical and pharmacological aspects of the use of drugs for the treatment of ENT diseases. Pharmaceutical care of patients with ENT pathology, the formation of practical skills, informing patients about the conditions of rational and safe use of drugs in the department and pharmacy. Acquisition of pharmaceutical skills when dispensing prescription and over-the-counter drugs for the symptomatic treatment of headache, fever, sore throat, rhinitis, nose.	0	6	2	8
14. Differential test.	0	2	4	6
Keeping a practice diary	0	0	10	10
In all hours – 120		80	40	120

5. TOPICS OF LECTURES / SEMINARS / PRACTICAL / LABORATORY CLASSES

5.1. Full-time form of education

5.1.1. Topics of lecture classes - lectures are not provided

5.1.2. Topics of seminar classes - seminar classes are not provided.

5.1.3. Topics of practical classes

№	Topic	Amount of hours
1.	Familiarization with the structure of the hospital and the principles of the basic multidisciplinary therapeutic-preventive maintenance, stationary departments, diagnostic units, pharmacy establishments that have settled down on the basis of the hospital,	6

	equipment the workplace of the pharmacist. Familiarize yourself with the main ones the principles of medical and pharmaceutical ethics and deontology, behavior of the pharmacist with a doctor, a nurse, ill patient, pharmacy practical fixing their skills. Principles consulting and information work in a department, in a pharmacy.	
2.	Basic clinical methods of examination of patients. Types of medical documentation. Medical history.	6
3.	Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of cardiovascular system.	6
4.	Pharmaceutical care of patients with pathology of organs of cardiovascular system, the formation of practical skills, informing conditions for patients for rational and safe use of drugs in conditions of departments and pharmacy.	6
5.	Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of respiratory system.	6
6.	Pharmaceutical care of patients with pathology of respiratory organs, the formation of practical skills, informing for patients about rational and safe use of drugs in conditions of departments and pharmacy.	6
7.	Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of GIT and hepato-biliar system.	6
8.	Pharmaceutical care of patients with pathology of digestion organs, formation of practical skills, informing patients about rational and safe use of drugs in conditions of department and pharmacy.	6
9.	Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of urinary tract.	6
10.	Pharmaceutical care of patients with pathology of Urinary organs, formation of practical skills, informing patients about rational and safe use of drugs in conditions of department and pharmacy.	6
11.	Analysis of clinical and pharmaceutical aspects of the use of drugs for the treatment of skin diseases. Pharmaceutical care of patients with skin pathology, formation of practical skills, informing patients about the conditions of rational and safe use of drugs in the conditions of the department and pharmacy.	6
12.	Analysis of clinical and pharmaceutical aspects of the use of drugs for the treatment of diseases of the nervous system. Pharmaceutical care of patients with pathology of nervous system, formation of practical skills, informing patients about the conditions of rational and safe use of drugs in the conditions of department and pharmacy.	6

13.	Analysis of clinical and pharmaceutical aspects of the use of drugs in the treatment of LOR diseases. Pharmaceutical care of patients with various pathology, formation of practical skills, informing patients about the conditions of rational and safe use of drugs in the department pharmacy.	6
14.	Differential test.	2
	In all	80

5.1.4. Topics of laboratory classes - laboratory classes are not provided.

6. INDEPENDENT WORK OF A HIGHER EDUCATION STUDENTS (IWS)

6.1. Full-time form of education

Topic	Number of hours
Topic 1. Preparation for practical classes and differential test.	16
Topic 2. Keeping a practice diary.	10
Topic 3. Study and preparation of topics that are assigned for independent study: <ul style="list-style-type: none"> - Clinical pharmacy in ophthalmology (main clinical conditions, groups of drugs, pharmacopeia issues); - Clinical pharmacy in oncology (groups of drugs, palliative and symptomatic care); - Age-related aspects of pharmacotherapy - clinical pharmacy in pediatrics (groups of drugs, pharmacopeia issues); - Age-related aspects of pharmacotherapy - clinical pharmacy in gerontology (groups of drugs, pharmacopeia issues); - Brand and generic drugs, bioequivalence of drugs, OTC drugs; - Methods and means of monitoring the effectiveness and safety of drug use; - Drugs and pregnancy, drugs and lactation. 	14
In all	40

7. FORMS AND METHODS OF TEACHING

Forms of teaching:

The discipline is taught in the form of lectures, practical classes; organization of independent work of the applicant.

Methods of teaching:

Practical classes: conversation, role-playing games, solving situational problems, solving test problems.

Independent work: independent work with the textbook, independent work with the recommended basic and additional literature, with electronic information resources, independent solving of clinical problems.

8. FORMS OF CONTROL AND CRITERIA FOR ASSESSING LEARNING RESULTS

Forms of current control: oral interview, testing, assessment of practical skills,

assessment of communication skills during a role-playing game, solving situational problems, assessment of activity in the lesson.

Form of final control: differential test.

Criteria for assessing the learning outcomes of higher education applicants during current control

Evaluation criteria

"5" The applicant actively participates in the discussion of the most difficult questions on the topic of the lesson, gives at least 90% correct answers to standardized test tasks, answers written tasks without errors, performs practical work and draws up a protocol.

"4" The applicant participates in the discussion of the most difficult questions on the topic, gives at least 75% correct answers to standardized test tasks, makes some minor mistakes in the answers to written tasks, performs practical work and draws up a protocol.

"3" The applicant participates in the discussion of the most difficult questions on the topic, gives at least 60% correct answers to standardized test tasks, makes significant mistakes in answers to written tasks, performs practical work and draws up a protocol.

"2" The applicant does not participate in the discussion of complex questions on the topic, gives less than 60% correct answers to standardized test tasks, makes gross mistakes in answers to written tasks or does not give answers to them at all, does not perform practical work and does not draw up a protocol.

Only those applicants who have fulfilled the requirements of the curriculum in the discipline, have no academic debt, and their average score for current academic activity in the discipline is at least 3.00 are allowed to take the final control in the form of differential test.

Criteria for evaluating the results of the students' training during final control – differential test

Evaluation criteria

Excellent "5" The applicant worked systematically during the semester, showed versatile and deep knowledge of the program material during the exam, is able to successfully perform the tasks provided for in the program, mastered the content of the main and additional literature, realized the interrelationship of individual sections of the discipline, their importance for the future profession, showed creative abilities in understanding and using educational program material, showed the ability to independently update and replenish knowledge; the level of competence is high (creative);

Good "4" The applicant has demonstrated full knowledge of the educational program material, successfully performs the tasks provided for by the program, has mastered the basic literature recommended by the program, has shown a sufficient level of knowledge in the discipline and is capable of their independent updating and renewal in the course of further training and professional activity; the level of competence is sufficient (constructive and variable)

Satisfactory "3" The applicant who demonstrated knowledge of the main curriculum material in the amount necessary for further education and subsequent work in the profession, copes with the tasks provided for by the program, made some mistakes in the answers on the exam and when completing the exam tasks, but has the necessary knowledge to overcome mistakes made under the guidance of a scientific and pedagogical worker; level of competence - average (reproductive)

Unsatisfactory "2" The applicant did not demonstrate sufficient knowledge of the main educational program material, made fundamental mistakes in the performance of

tasks provided for by the program, cannot use the knowledge in further studies without the help of a teacher, did not manage to master the skills of independent work; the level of competence is low (receptive-productive)

9. Distribution of points received by applicants for higher education

The obtained average score for the academic discipline for applicants who have successfully mastered the work program of the academic discipline is converted from a traditional four-point scale to points on a 200-point scale, as shown in the table:

Conversion table of a traditional assessment into a multi-point scale	
Traditional four-point scale	Multi-point 200-point scale
Excellent ("5")	185 - 200
Good ("4")	151 - 184
Satisfactory ("3")	120-150
Unsatisfactory ("2")	Below 120

A multi-point scale (200-point scale) characterizes the actual success rate of each applicant in mastering the educational component. The conversion of the traditional grade (average score for the academic discipline) into a 200-point grade is performed by the information and technical department of the University.

According to the obtained points on a 200-point scale, the achievements of the applicants are evaluated according to the ECTS rating scale. Further ranking according to the ECTS rating scale allows you to evaluate the achievements of students from the educational component who are studying in the same course of the same specialty, according to the points they received.

The ECTS scale is a relative-comparative rating, which establishes the applicant's belonging to the group of better or worse among the reference group of fellow students (faculty, specialty). An "A" grade on the ECTS scale cannot be equal to an "excellent" grade, a "B" grade to a "good" grade, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" according to the ECTS scale do not coincide with the limits of grades "5", "4", "3" according to the traditional scale. Acquirers who have received grades of "FX" and "F" ("2") are not included in the list of ranked acquirers. The grade "FX" is awarded to students who have obtained the minimum number of points for the current learning activity, but who have not passed the final examination. A grade of "F" is assigned to students who have attended all classes in the discipline, but have not achieved a grade point average (3.00) for the current academic activity and are not admitted to the final examination.

Applicants who study in one course (one specialty), based on the number of points scored in the discipline, are ranked on the ECTS scale as follows:

Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale

Evaluation on the ECTS scale Statistical indicator

- A The best 10% of achievers
- B The next 25% of applicants
- C The next 30% of applicants
- D The next 25% of earners
- E The next 10% of earners

10. METHODOLOGICAL SUPPORT

- Syllabus of the academic discipline
- Working program of the academic discipline
- Methodological recommendations for lectures
- Methodological recommendations for practical classes

- Methodological recommendations for independent work of higher education applicants
- Multimedia presentations
- Illustrative materials
- Situational tasks
- Database of test tasks

11. List of questions for preparation for the final control - for differential test.

1. Principles of classification of medicines on prescription and over-the-counter.
2. Features of branded and generic drugs, requirements for generics, principles of interchange.
 1. The concept of bioequivalence.
 2. Clinical pharmacodynamics: basic principles and principles.
 3. Clinical pharmacokinetics: basic concepts, definitions.
 4. Features of pharmacokinetics of LV in different age periods.
 5. Features of pharmacokinetic processes during pregnancy and lactation.
 6. Modulating effect of food on pharmacokinetic parameters and pharmacological properties of drugs.
 7. Criteria for choosing the dosage form and route of administration for a particular patient, depending on age, sex, clinical course of the disease, etc.
10. Understanding about biopharmaceuticals, basic principles and provisions.
11. Classification of ways of introduction of drugs in the body: advantages and disadvantages.
12. Role of the pharmacist in the system of responsible self-medication.
13. An algorithm for choosing a pharmacotherapy for a particular patient.
14. Methods and criteria for assessing the effectiveness and safety of antibiotics.
15. Methods and criteria for assessing the effectiveness and safety of the use of bronchodilators.
16. Methods and criteria for assessing the effectiveness and safety of antianginal drugs.
17. Methods and criteria for assessing the effectiveness and safety of the use of antihypertensive drugs.
18. Methods and criteria for assessing the effectiveness and safety of cardiotoxic drugs.
19. Methods and criteria for assessing the effectiveness and safety of steroidal anti-inflammatory drugs.
20. Methods and criteria for assessing the effectiveness and safety of the use of non-steroidal anti-inflammatory drugs.
21. Methods and criteria for assessing the effectiveness and safety of antacids.
22. Methods and criteria for assessing the effectiveness and safety of the use of antisecretory drugs.
23. Methods and criteria for assessing the effectiveness and safety of the use of diuretic drugs.
24. Methods and criteria for assessing the effectiveness and safety of the use of iron preparations.
25. Methods and criteria for assessing the effectiveness and safety of the use of sugar-reducing drugs.
26. Methods and criteria for assessing the effectiveness and safety of the use of anesthetics, infusion and other means in anesthetics and resuscitation, non-invasive and general surgery.

27. Combined use of drugs. Elements of pharmaceutical care.
28. Interaction of drugs used for treatment of diseases of the cardiovascular system.
29. Interaction of drugs used to treat diseases of the digestive system.
30. Interaction of drugs used for the treatment of respiratory diseases.
31. Interaction of drugs used for the treatment of diseases of the kidneys and urinary tract.
32. Interaction of drugs used to treat diseases of the blood system.
33. Interaction of drugs used for the treatment of endocrine diseases.
34. Practical implementation of combined antibiotic therapy.
35. Clinical and pharmaceutical aspects of urgent therapy of hypertensive crises.
36. Clinical and pharmaceutical aspects of urgent therapy of acute hypotensive conditions.
37. Clinical and pharmaceutical aspects of urgent therapy of acute myocardial infarction.
38. Clinical and pharmaceutical aspects of urgent therapy of acute heart failure.
39. Clinical and pharmaceutical aspects of urgent therapy of acute renal failure.
40. Clinical and pharmaceutical aspects of emergency treatment of anaphylactic shock and Quink's edema.
41. Clinical and pharmaceutical aspects of urgent therapy of asthmatic status and attack of bronchial asthma.
42. Clinical and pharmaceutical aspects of therapy of gastrointestinal bleeding.
43. Clinical and pharmaceutical aspects of elimination of pain syndrome.
44. Clinical and pharmaceutical aspects of treatment of colic.
45. Principles and features of urgent therapy of complications of diabetes mellitus.
46. Pharmaceutical care: basic principles and regulations.
47. Pharmaceutical care of patients with pathology of the respiratory organs.
48. Pharmaceutical care of patients with pathology of the cardiovascular system.
49. Pharmaceutical care of patients with pathology of the digestive system.
50. Pharmaceutical care of patients with pathology of the endocrine system.
51. Pharmaceutical care of patients with pathology of the genitourinary system.
52. Major eye diseases, symptoms, groups of drugs for symptomatic care.
53. The main skin diseases, symptoms, groups of drugs for treatment.
54. Sexually transmitted diseases, symptoms, principles of pharmacotherapy.
55. Diseases of the central nervous system, symptoms, methods of diagnosis and treatment.
56. Diseases of the peripheral nervous system, symptoms, methods of diagnosis and treatment.
57. Diseases of the otorhinolarynx-organs, symptoms, groups of drugs for symptomatic treatment.

12. Recommended literature:

Basic:

- 1) Betram G Katzung Basic and Clinical Pharmacology, 14th Edition. - McGraw-Hill Medical, 2018.- 1235 p.

- 2) Clinical pharmacology: Manual for practical classes. – 2-nd edition / Edited by O.V.Kraydashenko. – Vinnytsya: Nova Khyna Publishers, 2010. – 192 p.
- 3) T.R.Harrison and others Harrison's principles of internal medicine, 19 th edition (Vols 1&2). – McGraw Hill education, 2015. – 3983 p.
- 4) Craham Douglas, Fiona Nicol, Colin Robertson Macleod's clinical examination, 13th edition. – Churchill Livingstone, 2013. – 471 p.

Additional:

- 1) Emergency management of internal diseases / Edited by O.Babak and O.Bilovol. – Kyiv: AUS Medicine Publishing, 2010. – 448 p.
- 2) Клініко-фармакологічний глосарій: навч.посібник / В.Й.Кресюн, В.В.Годован, С.Б.Стречень. – Одеса: ОНМедУ, 2015. – 328 с.
- 3) Rozhkovsky Ya.V., Strechen S.B., Tregub T.V., Poludenko G.O. Methodological instructions to clinical pharmacy industrial practice / Odessa, 2023. – 19 p.

13. Electronic information resources:

1. Resources for predicting inter-drug interactions (based on FDA instructions, in English) URL: <http://www.drugs.com>
2. Resource-Directory of Medicines and Forecasting of Intercurricular Interactions (in English). URL: <http://www.medscape.org>
3. Interregional Society of Evidence-Based Medicine: <http://www.osdm.org/index.php>
4. Bulletin of Evidence-Based Medicine: <http://www.evidence-update.ru>
5. European Society of Clinical Pharmacologists and Pharmacists: <http://www.eacpt.org>
6. Resources for drug interactions: <http://medicine.iupui.edu/flockart/>

Appendix 1.

ODESSA NATIONAL MEDICAL UNIVERSITY

PRACTICE DIARY

Industrial practice in clinical pharmacy and pharmaceutical care

Surname, first name

Faculty/form of education pharmaceutical full-time/part-time

Course _____ Group _____

Department of general and clinical pharmacology with the pharmacognosy

Educational and qualification level: second (master's)

Field of training - 22 "Health care"

Specialty - 226 "Pharmacy. Industrial pharmacy"

Student (surname, first name) _____

Arrived (name of LPU) _____

Stamp of the institution, organization " ____ " _____ of 20

_____ (signature) (position, name of responsible person)

Dropped out of (name of LPU)

Stamp of the institution, organization " ____ " _____ "20

_____ (signature) (position, name of responsible person)

An example algorithm for daily entries when keeping a diary

Date, hours*	The content of the work done **	The teacher's signature

Notes:

- * - Specify the hours of work during classroom work and independent work;

- ** - approximate chart of the records of the work done during the school day:

the name of the branch; the characteristics of diseases that are treated in the department; number of patients, being on a stationary treatment; Clinical description of 1-2 patients (age, gender, clinical diagnosis, patient status analysis, list of self-performed primary diagnostic procedures); clinical and pharmaceutical analysis of patient appointment sheets, proper justification of the rationality of prescribed

pharmacotherapy; recommended measures of pharmaceutical care regarding the use of prescription drugs in the hospital and non-prescription drugs in the pharmacy; additional information.

Appendix 2.

FINAL REPORT

about the work done during the industrial practice in clinical pharmacy and pharmaceutical care

5th year student at the Pharmaceutical Faculty _____ group

Odessa National Medical University

(Full name)

Place of practice:

Department of General and clinical pharmacology with the pharmacognosy

(cycle of Clinical Pharmacology)

Clinical Base _____

№	List of varieties of works in which participated student	Stationary department	Pharmacy
1.	Participation in the collection of anamnesis of a patient		
2.	Participation in the analysis of papers recognized individual patients		
3.	The presence of a clinical sick of the patients		
4.	The presence of a doctor inspection, head of department, assistant professor, assistant		
5.	Analysis of rationality and safety pharmacotherapy of individual patients		
6.	Consultation to the patient members of his family concerning rational application of drugs, according to the principles of pharmaceutical care		

7.	Providing advice according to principles of pharmaceutical care to a doctor		
8.	Getting started with instructions on drugs according to the schedule of appointments and a receipt form		
9.	Introducing the message about the undesirable effect of a specific drug		
10.	Processing information for "Compendium", other information handbooks		
11.	Carrying out sanitary-educational work with patients		
12.	Measurement of blood pressure, body temperature, pulse frequency su, breath		
13.	Carrying out work on warning is a side effect of the drug		
14.	Implementation of other types of work (specify)		
	The teacher's signature		