

**MINISTRY OF HEALTH OF UKRAINE  
ODESSA NATIONAL MEDICAL UNIVERSITY**

Department of general and clinical pharmacology with the  
pharmacognosy



**APPROVED**

Vice-rector for scientific and pedagogical activity

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**WORKING PROGRAM OF EDUCATIONAL DISCIPLINE  
"INDUSTRIAL PRACTICE – CLINICAL PHARMACY AND  
PHARMACEUTICAL CARE"**

**(Full-time education)**

Level of higher education: second (master's)

Field of knowledge: 22 "Health care"

Specialty: 226 "Pharmacy. Industrial pharmacy"

Educational and professional program: "Pharmacy. Industrial pharmacy"

The working program is based on the educational and professional program "Pharmacy. Industrial pharmacy" training of specialists of the second (master's) level of higher education in specialty 226 "Pharmacy. Industrial pharmacy" of the field of knowledge 22 "Health care", approved by the Scientific Council of ONMedU (protocol No. 8 dated June 29, 2023).

Developers: Doctor of Medicine, Professor Rozhkovsky YA.V.  
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The working program was approved at the meeting of the department of general and clinical pharmacology with the pharmacognosy Protocol No. 1 dated 28.08.2023.

Head of the department  Yaroslav ROZHKOVSKY

Agreed with EPP guarantor  Liana UNHURIAN

Approved by the subject cycle methodical commission for pharmaceutical disciplines of ONMedU  
Protocol No. 1 dated 29.08.2023

Head of the subject cycle  
methodical 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

Protocol 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 Content modules: 1	Field of knowledge 22 "Health care"	<i>Full-time education</i>		
		<i>Mandatory discipline</i>		
	Specialty 226 "Pharmacy. Industrial pharmacy"	<i>Year of training:</i>	5	
		<i>Semester</i>	X	
		<i>Lectures</i>	0 hours	
		<i>Practical classes</i>	40 hours	
		<i>Individual work</i>	80 hours	
		<i>including individual tasks</i>	0 hours	
Level of higher education second (master's)	<i>The form of the final control is</i>	<i>Differential test</i>		

## 2. PURPOSES AND TASKS OF THE EDUCATIONAL DISCIPLINE

**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 industrial practice:** - 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 the elements of **the following competencies:**

**Integral (IC) – Ability** to solve problems of a research and/or innovative nature in the field of pharmacy and to critically consider and solve practical problems in professional pharmaceutical activity using provisions, theories and methods

of fundamental, chemical, technological, biomedical and socio-economic sciences; integrate knowledge and solve complex issues, formulate judgments based on insufficient or limited information; clearly and unambiguously convey one's own knowledge, conclusions and their validity to a professional and non-professional audience.

Ability to continue learning with a high degree of autonomy.

### **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 act socially responsibly and consciously.

GC11. Ability to apply knowledge in practical situations.

GC12. The desire to preserve the environment.

GC13. Ability to show initiative and entrepreneurship.

GC14. Ability to adapt and act in a new situation.

GC15. Knowledge and understanding of the subject area and understanding of professional activity

GC16. The ability to conduct experimental research at the appropriate level.

### **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. The ability to consult on prescription and non-prescription drugs and other products of the pharmacy assortment; pharmaceutical care during the selection and sale of medicinal products 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. The ability to monitor the effectiveness and safety of the population's use of medicines according to data on their clinical and pharmaceutical characteristics.

PC13. The ability to organize the activities of the pharmacy to provide the population, health care institutions with medicines and other products of the pharmacy assortment and to implement appropriate reporting and accounting systems in them, to carry out product analysis, administrative record keeping taking into account the requirements of pharmaceutical legislation.

PC15. The ability to conduct an analysis of socio-economic processes in pharmacy, forms, methods and functions of the system of pharmaceutical provision of the population and its components in global practice, indicators of the need, effectiveness and availability of pharmaceutical care in terms of medical insurance and reimbursement of the cost of medicines.

PC21. The ability to ensure the rational use of prescription and non-prescription drugs in accordance with the physicochemical, pharmacological characteristics, biochemical, pathophysiological features of a particular disease and pharmacotherapeutic schemes of its treatment.

PC22. The ability to monitor the effectiveness and safety of the use of medicinal products by the population according to the data on their clinical and pharmaceutical characteristics, as well as taking into account subjective signs and objective clinical, laboratory and instrumental criteria for the examination of the patient.

PC24. Ability to use knowledge of regulatory and legislative acts of Ukraine and recommendations of proper pharmaceutical practices in professional activity.

PC25. The ability to demonstrate and apply in practical activities communicative communication skills, fundamental principles of pharmaceutical ethics and deontology, based on moral obligations and values, ethical standards of professional behavior and responsibility in accordance with the Code of Ethics of Pharmaceutical Workers of Ukraine and WHO guidelines.

PC30. Ability to diagnose emergency conditions.

PC31. Ability to carry out medical evacuation measures.

PC32. Ability to perform medical manipulations.

### **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 concretely convey to specialists and non-specialists, including those seeking higher education, information based on one's own knowledge and professional experience, the main trends in the development of world pharmacy and related industries.

PLO10. To carry out sanitary and educational work among the population for the purpose of prevention and in case of outbreaks of dangerous infectious, viral and parasitic diseases.

PLO11. Determine the advantages and disadvantages of drugs of natural and synthetic origin of various pharmacological groups, taking into account their chemical, physicochemical, biopharmaceutical, pharmacokinetic,

pharmacodynamic features and the type of dosage form. Recommend to consumers medicinal products and other products of the pharmacy assortment with the provision of advisory assistance and pharmaceutical care.

PLO12. Provide pre-medical assistance to patients in emergency situations and victims in extreme situations.

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

PLO18. To use data from the analysis of socio-economic processes in society for the pharmaceutical supply of the population, to determine the effectiveness and availability of pharmaceutical care in terms of medical insurance and reimbursement of the cost of medicines.

PLO24. Conduct professional activities in social interaction based on humanistic and ethical principles; to identify future professional activity as socially significant for human health.

PLO25. Adhere to the norms of the sanitary and hygienic regime and the requirements of safety equipment when carrying out professional activities.

PLO26. Argue information for decision-making, bear responsibility for them in standard and non-standard professional situations; adhere to the principles of deontology and ethics in professional activity.

PLO27. Perform professional activities using creative methods and approaches.

PLO28. To carry out professional communication in the state language, use oral communication skills in a foreign language, analyzing specialized texts and translating foreign language information sources.

PLO29. To carry out professional activities using information technologies, "Information databases", navigation systems, Internet resources, software and other information and communication technologies.

PLO30. Adhere to the norms of communication in professional interaction with colleagues, management, consumers, work effectively in a team.

PLO32. Analyze information obtained as a result of scientific research, summarize, systematize and use it in professional activities.

PLO33. Determine the influence of factors that affect the processes of absorption, distribution, deposition, metabolism and excretion of the medicinal product and are determined by the condition, features of the human body and the physicochemical properties of medicinal products.

PLO34. Use the data of clinical, laboratory and instrumental studies to monitor the effectiveness and safety of the use of medicinal products.

PLO36. Plan and implement professional activities on the basis of normative legal acts of Ukraine and recommendations of proper pharmaceutical practices.

PLO37. To contribute to the preservation of health, in particular the prevention of diseases, the rational prescription and use of medicinal products. To conscientiously fulfill one's professional duties, to comply with the legislation on the promotion and advertising of medicinal products. Possess psychological communication skills to achieve trust and mutual understanding with colleagues, doctors, patients, consumers

PLO41. To determine the main clinical syndrome or symptom that determines the severity of the victim/injured person's condition by making a reasoned decision about the person's condition under any circumstances (in the conditions of a health care institution, outside its borders), including in conditions of emergency and hostilities, in field conditions, in conditions of lack of information and limited time.

PLO42. To organize the provision of medical aid and medical evacuation measures to the population and military personnel in emergency situations and hostilities, including in field conditions.

PLO43. To organize the necessary level of individual safety (own and the persons he cares for) in case of typical dangerous situations in the individual field of activity.

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

**To know:** - the main operating orders, normative documents of the Ministry of Health of Ukraine 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.



**To be able:**

- 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;
- 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.

**To master the skills:**

- Communicating with patients, verifying the correctness of prescriptions (doses, frequency of administration, age, gender, etc.), checking the correctness of keeping appointment letters for inpatients;
- To orientate in the basic and newest dosage forms in each pharmacological group of drugs and the possibility of their replacement in case of absence;
- Possession of information about modern drugs in each pharmacological and pharmacotherapeutic group of drugs and the possibility of replacing them with analogues;
- Possession of information about modern international standards for quality assurance of medicines, creation of formularies for the treatment of nosoforms.

**3. Content of the discipline**

**Content module 1. Acquaintance with the structure and principles of work of the basic medical and preventive and pharmacy institution, organization of work of the pharmacist at the department and the pharmacy, acquisition of skills of work with patients and visitors of the pharmacy and documentation.**

**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.** Differential test.

The differential test is conducted on the last lesson after finish of discipline during 90 minutes. The basic forms of control of mastering of discipline are offer an orally answer for theoretical questions, writing decision and orally ground of situational tasks from the choice of the urgent differentiated medical help (choice of group of drugs, recipes on recommended drugs), defence of educational-research work of student from the analysis of pharmacodynamics of drugs.

Before final attestation students that does not have an academic debt and have a middle point for current educational activity not less than 3,00 are assumed only. The differentiated test of student is estimated on a 4-mark (traditional) scale. Final control must be standardized. A middle point for discipline (traditional estimation) settles accounts as AV arithmetic current success and estimation for the differential test.

Example: Current success 4,76; estimation on the differential test - 4.  
 $(4,76+4): 2=4,38$ .

The got estimation for discipline is considered as a percent of mastering of necessary volume of knowledge from industrial practice – Clinical pharmacy and pharmaceutical care.

#### 4. STRUCTURE OF THE DISCIPLINE - “INDUSTRIAL PRACTICE IN CLINICAL PHARMACY AND PHARMACEUTICAL CARE”

Topic	Lectures	Practical classes	IWS	Individual work	In all
<b><u>Industrial practice in clinical pharmacy and pharmaceutical care</u></b>					
<b><i>Content module 1.</i></b>					
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 principle 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	3		9
2. Basic clinical methods examination of patients. Types of medical documentation. Medical history.	0	4	2		6
3. Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of cardiovascular system.	0	4	4		8
4. Pharmaceutical care of patients with pathology of organs of cardiovascular system, the formation of practical skills, informing conditions for patients rational and safe	0	4	2		6

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	4	3		7
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	4	2		6
7. Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of GIT and hepato-biliar system.	0	4	4		8
8. Pharmaceutical care of patients with pathology of digest organs, formation of practical ski informing patients about rational and safe use of drugs in conditionss of department and pharmacy.	0	4	2		6
9. Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of urinary tract.	0	2	2		4
10. Pharmaceutical care of patients with pathology of urinar organs, formation of practical ski informing patients about rational and safe use of drugs in conditionss of department and pharmacy.	0	2	2		4
11. Differential test.	0	2	4		6
12. Keeping a practice diary			10		10
13. Elaboration and study topics that are rendered for self-study			40		40
<b>In all hours – 120</b>		<b>40</b>	<b>80</b>		<b>120</b>

## 5. Topics of lectures/seminars/practical/laboratory classes

5.1. Topics of lecture classes - lecture classes are not provided

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

### 5.3. Topics of practical classes

№	Topic	Amount of hours
1.	Familiarization with the structure the tour 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, 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.	6
2.	Basic clinical methods of examination of patients. Types of medical documentation. Medical history.	4
3.	Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of cardiovascular system.	4
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.	4
5.	Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of respiratory system.	4
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.	4
7.	Analysis of clinical and pharmaceutical aspects of application of drugs for the treatment of diseases of GIT and hepato-biliar system.	4
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.	4
9.	Analysis of clinical and pharmaceutical aspects of	2

	application of drugs for the treatment of diseases of urinary tract.	
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.	2
11.	Differential test.	2
	In all	40

#### 5.4. Topics of laboratory classes - laboratory classes are not provided

#### 6. Independent work of a student of higher education (IWS)

<b>№</b>	<b>Theme</b>	<b>Amount of hours</b>	<b>Type of control</b>
1.	Preparation for practical classes - theoretical training.	26	Current control on practical classes, differential test
2.	Elaboration and preparation of topics that are submitted for independent study: <ul style="list-style-type: none"> <li>- Clinical pharmacy in ophthalmology (main clinical conditions, groups of drugs, issues of pharmcare);</li> <li>- Clinical pharmacy in dermatology (main clinical conditions, groups of drugs, issues of pharmcare);</li> <li>- Clinical pharmacy in oncology (groups of drugs, palliative and symptomatic care);</li> <li>- Clinical pharmacy in neurology (basic clinical conditions, groups of drugs, issues of pharmcare);</li> <li>- Clinical pharmacy in otorhinolaryngology (main clinical conditions, groups of drugs, issues of pharmcare);</li> <li>- Age aspects of pharmacotherapy - clinical pharmacy in pediatrics (groups of</li> </ul>	40	Differential test

	drugs, issues of pharmacare); - Age aspects of pharmacotherapy - clinical pharmacy in gerontology (groups of drugs, issues of pharmacare); - Branded and generic drugs, bioequivalence of drugs, OTC drugs; - Methods and means of monitoring the effectiveness and safety of drugs; - Medication and pregnancy, medication and lactation.		
3.	Preparation for a differential test.	4	Differential test
4.	Keeping a diary of practice.	10	Current control
	<b>In all</b>	<b>80</b>	

### 7. Methods of studying.

**Practical classes:** conversation, solving clinical situational tasks, practicing patient examination skills, developing professional skills and abilities to determine the general principles of pharmacokinetics, pharmacodynamics, prescribing prescriptions, solving typical pharmacotherapeutic tasks and test tasks, determining whether drugs belong to the pharmacological and pharmacotherapeutic group according to the international classification, possible indications for use; analysis and assessment of criteria for the effectiveness and safety of the use of drugs prescribed to the patient.

**Independent work:** independent work with the textbook, independent work with the bank of test tasks of discipline, independent solution of pharmacotherapeutic tasks.

### 8. Methods and forms of control and evaluation methods (including criteria for evaluating learning outcomes)

**Current control:** testing, oral survey, problem solving.

**Final control:** differential test.

Evaluation of the current educational activity in a practical session:

1. Evaluation of theoretical knowledge on the subject of the lesson:
  - methods: survey, testing, solving a situational problem
  - maximum score – 5, minimum score – 3, unsatisfactory score – 2.
2. Assessment of practical skills on the topic of the lesson:
  - methods: assessment of the correctness of the performance of practical skills
  - maximum score – 5, minimum score – 3, unsatisfactory score – 2.



The grade for one practical session is the arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded according to the statistical method.

### **Current evaluation criteria in practical training**

#### **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 training program in the discipline, have no academic debt and their average score for the current educational activity in the discipline is at least 3.00 are admitted to the final control in the form of a differential test.

### **Evaluation of the results of the students' training during the final control – differential test**

#### **Content of evaluated activity**

#### **Number of points**

- |   |   |
|---|---|
| 1. Solving the clinic-pharmacological or pharmacotherapeutic tasks with the evaluation of laboratory and instrumental studies | 3 |
| 2. Answer to theoretical questions  | 2 |

### **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:**

- The working program of the academic discipline
- Syllabus of the academic discipline
- Textbooks:
- Betram G Katzung Basic and Clinical Pharmacology, 14th Edition. - McGraw-Hill Medical, 2018.- 1235 p.

- Clinical pharmacology: Textbook for medical universities of the IV level of accreditation / Ed. O.Ya.Babak, A.N.Bilovol, I.S. Chekman. - K : Medicine, 2012 .-- 728 p.
- T.R.Harrison and others. Harrison's principles of internal medicine, 19 th edition (Vols 1&2). – McGraw Hill education, 2015. – 398 p.
  - Craham Douglas, Fiona Nicol, Colin Robertson Macleod's clinical Examination, 13th edition. – Churchill Livingstone, 2013. – 471 p.
- Multimedia presentations
- Situational clinical, pharmacological and pharmacotherapeutic tasks
- Methodical manual of practical classes
- Electronic bank of test items for discipline sections.

### **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.

**LIST OF PRACTICAL SKILLS WHICH LEARNING IS CONTROLLED DURING THE DIFFERENTIAL TEST "Industrial practice – Clinical pharmacy and pharmaceutical care"**

- I. Analysis of clinical, pharmacological and pharmacotherapeutic tasks.
- II. The rules for prescribing and the correctness of the preparation of the prescription form.
- III. Control of assimilation and carrying out of the simplest methods of inspection of the patient.

## 12. Recommended literature:

### Basic:

- 1) Betram G Katzung Basic and Clinical Pharmacology, 14th Edition. - McGraw-Hill Medical, 2018.- 1235 p.
- 2) Pharmacology in rehabilitation. – 4-th edition / Charles D. Ciccone, PT. – USA, 2007. – 653 p.
- 3) Clinical pharmacology: Manual for practical classes. – 2-nd edition / Edited by O.V.Kraydashenko. – Vinnytsya: Nova Khyna Publishers, 2010. – 192 p.
- 4) T.R.Harrison and others Harrison’s principles of internal medicine, 19 th edition (Vols 1&2). – McGraw Hill education, 2015. – 3983 p.
- 5) 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) Clinical pharmacology: Tutorial for independent training of students / S.Strechen, T.Tregub. - Odessa: ONMU, 2012. - 239 p.
- 3) Клініко-фармакологічний глосарій: навч.посібник / В.Й.Кресюн, В.В.Годован, С.Б.Стречень. – Одеса: ОНМедУ, 2015. – 328 с.
- 4) EDUCATIONAL AND METHODOICAL MANUAL to practical training in clinical pharmacy for the students of pharmaceutical faculty / Strechen S.B., Vidavskaya A.G., Tregub T.V., Bazalieieva I.V., Poludenko A.A., Rzhhevskaya Yu.I. – Part 1. – Odessa, 2019. – 665 p.; Part 2. – Odessa, 2019. – 732 p.
- 5) Methodical instructions to clinical pharmacy industrial practice for students of the 5th year of the Faculty of Pharmacy specialty 226 – Pharmacy, industrial pharmacy / L.R.Nikohosyan, S.B.Strechen, T.V.Tregub, G.O.Poludenko, Yu.I.Rzhhevskaya. – Odessa, 2021. – 19 p.

## 13. Electronic information resources:

1. State Expert Center of Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>
2. Ukrainian Scientific Pharmacopoeial Drug Quality Center <http://sphu.org/>
3. National Scientific Medical Library of Ukraine <http://library.gov.ua/>
4. National Library of Ukraine named after V.I. Vernadsky <http://www.nbuv.gov.ua/>
5. Resources for predicting inter-drug interactions (based on FDA instructions, in English) URL: <http://www.drugs.com>

6. Resource-Directory of Medicines and Forecasting of Intercurricular Interactions (in English). URL: <http://www.medscape.org>
7. [www.studmedlib.ru](http://www.studmedlib.ru)
8. [www.Med-Tutorial.ru](http://www.Med-Tutorial.ru)
9. Interregional Society of Evidence-Based Medicine: <http://www.osdm.org/index.php>
10. Bulletin of Evidence-Based Medicine: <http://www.evidence-update.ru>
11. European Society of Clinical Pharmacologists and Pharmacists: <http://www.eacpt.org>
12. Resources for drug interactions: <http://medicine.iupui.edu/flockart/>



## 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)

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Stamp of the institution, organization "\_\_\_\_" \_\_\_\_\_ of 20

\_\_\_\_\_(signature) (position, name of responsible person)

Dropped out of (name of LPU)

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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.

## 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		