



**MINISTRY OF HEALTH OF UKRAINE
NATIONAL UNIVERSITY OF PHARMACY
Department of Clinical Pharmacology and Clinical Pharmacy**

CLINICAL PHARMACY AND PHARMACEUTICAL CARE

(the name of educational component)

**WORK PROGRAM
of educational component**

training for

Master

(Higher Educational Level Name)

in specialty

226 Pharmacy, Industrial Pharmacy

(Code and Specialty name)

field of knowledge

22 Public health

(Code and Knowledge Field Name)

of educational program

Pharmacy

(Language of Instruction — English)

(Educational Program Title)

in specialization(s)

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(Name of specialization, if available)

The work program of the educational component «Clinical Pharmacy and Pharmaceutical Care» in specialty «226 Pharmacy, industrial pharmacy» educational program «Pharmacy» in specialization(s) _____ - _____ for foreign applicants (Language of Instruction — English) for higher education 4-5 years of study.

EDUCATIONAL COURSE TEAM: ZUPANETS Kateryna, Head of Department of Clinical Pharmacology and Clinical Pharmacy NUPh, Doctor of Pharmacy, Professor;
PROPISNOVA Viktoriia, Associate Professor of Department of Clinical Pharmacology and Clinical Pharmacy NUPh, PhD

(Enter the printed name and academic rank of the authors)

Work program has been considered and approved at the Meeting of the Department of Clinical Pharmacology and Clinical Pharmacy of NUPh.
Record from «02» September 2022 # 1

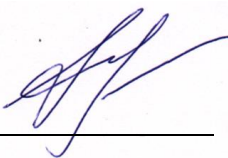
Acting Head of the Department



Prof. Tetyana SAKHAROVA

The work program has been approved at the Meeting of the Methodical Committee on Biomedical Disciplines of NUPh.
Record from «12» September 2022 # 1

Head of the Specialized Committee



Prof. Nadia KONONENKO

1. Description of the educational component

Language of study: English

Status of the educational component: Obligatory

Clinical pharmacy is the integrative applied science, combining the pharmaceutical and clinical aspects of the pharmacology, the main task of which is to provide a reliable theoretical basis and methodological approaches to the rational use of medicines.

«Clinical pharmacy and pharmaceutical care» is mandatory educational component, which provides theoretical knowledge and practical skills in the field of clinical medicine and clinical pharmacology, analysis and correction of medical therapy, selection of the most rational drug and their combinations for a particular patient, contributes to the formation of skills to apply knowledge of clinical pharmacy in professional activities during the pharmaceutical care provide.

The subject of educational component study «Clinical Pharmacy and Pharmaceutical Care» is the principles of rational use of drugs, ways of prevention of adverse drug reactions, approaches to pharmaceutical care.

Prerequisites for studying the educational component: The educational component «Clinical Pharmacy and Pharmaceutical Care» is based on the study of biology and genetics fundamentals, physiology and human anatomy, microbiology with immunology fundamentals, pathological physiology, biochemistry, pharmacology, laboratory diagnostics, pharmacotherapy with pharmacokinetics, as well as a unit of chemical courses and medicine technology and integrates with these components.

Information content of the educational component. 9 ECTS credits 270 hours are assigned to the study of the educational component.

2. Objectives and tasks of the educational component

The purpose of teaching the educational component «Clinical pharmacy and pharmaceutical care» is to train pharmacists who would have a sufficient theoretical knowledge and practical skills to work with the doctor in providing the most efficient therapy for a particular patient, as well as the pharmaceutical care of patients in the pharmacy.

The main tasks of the educational component «Clinical Pharmacy and Pharmaceutical Care» are:

- acquisition of general syndromology and symptomology of the most common diseases in the clinic of internal diseases;
- acquisition of the main signs and symptoms that can be treated with OTC drugs within the concept of self-medication (runny nose, headache, diarrhea, etc.);
- study of the signs of the main syndromes that require the obligatory intervention of the doctor;
- study of the general principles of diagnostics and methodology of differential diagnostics of internal organ diseases, acquisition of general principles of interpretation of the results of a patient examination;
- acquisition of the general methodology and principles of the drug choice for effective and safe therapy, taking into account the functional state of a patient and the pharmacological features of the drugs;
- study of risk factors of development of drug side effects, clinical manifestations of side effects of drugs and their combinations, acquisition of the main approaches to reducing the side effects of drugs in their appointment to the particular patient;
- acquisition of principles for assessing the effectiveness and safety profile of the particular pharmacological groups and drug;
- acquisition of the basic principles of symptomatic treatment of diseases and pathological states in which responsible self-medication is possible;
- acquisition of principles and skills for the pharmaceutical care of patients in the treatment of OTC and prescription drugs;
- acquisition of skills for obtaining, analyzing and presenting the information about the pharmacological properties of drugs, ie conducting the consulting work about drugs among medical professionals and different population groups;

- acquisition of the principles of medical deontology, ethical norms of the pharmacist's behavior in the clinic, the relationship between the pharmacist and the doctor, pharmacist and patient;
- familiarization with the main types of medical documentation and methods of clinical examination of patients.

3. Competency and planned educational outcomes

Educational component «Clinical pharmacy and pharmaceutical care» ensures the acquisition of applicants for higher education the following **competences**:

general

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

GC 7. Ability to adapt and act in a new situation.

professional

PC 1. Ability to conduct sanitary and educational work among the population to prevent common diseases, prevent dangerous infectious, viral and parasitic diseases, as well as to facilitate the timely detection and maintenance of adherence to treatment of these diseases in accordance with their medical and biological characteristics and microbiological characteristics.

PC 2. Ability to provide medical advice on prescription and over-the-counter medications and other products of the pharmacy range; pharmaceutical care during the selection and sale of the over-the-counter medications by assessing the risk/benefit, compatibility, indications and contraindications based on data on the health of a particular patient, taking into account biopharmaceutical, pharmacokinetic, pharmacodynamic and physical and chemical characteristics of the medicine and other pharmaceutical product.

PC 4. Ability to ensure the rational use of prescription and over-the-counter medications and other pharmaceutical products in accordance with physical, chemical and pharmacological characteristics, biochemical, pathophysiological features of a particular disease and pharmacotherapeutic regimens of its treatment.

PC 5. Ability to monitor the effectiveness and safety of the population of medications 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 a patient.

PC 13. Ability to demonstrate and apply in practice communication skills, fundamental principles of pharmaceutical ethics and deontology, based on moral obligations and values, ethical standards of professional behavior and responsibility in accordance with the Code of Ethics for Pharmaceutical Workers of Ukraine and WHO guidelines.

Integrative final **program learning outcomes** (PLO), the formation of which is facilitated by the educational component:

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

PLO 5. To position own professional activities and personal qualities in the pharmaceutical labor market; to formulate the purposes of own activity taking into account public and industrial interests.

PLO 6. To argue information for decision-making, to be responsible for it in standard and non-standard professional situations; to adhere to the principles of deontology and ethics in professional activities.

PLO 7. To perform professional activities using creative methods and approaches.

PLO 9. To carry out professional activities using information technology, "Information Databases", navigation systems, Internet resources, software and other information and communication technologies.

PLO 10. To adhere to the norms of communication in professional interaction with colleagues, management, consumers, work effectively in a team.

PLO 13. To carry out sanitary and educational work in professional activity in case of outbreaks of infectious, viral and parasitic diseases.

PLO 14. To determine the advantages and disadvantages of medications of different pharmacological groups, taking into account their chemical, physical and chemical, biopharmaceutical, pharmacokinetic and pharmacodynamic features. To recommend to consumers over-the-counter medications and other products of the pharmaceutical range with the provision of counselling and pharmaceutical care.

PLO 17. To use the clinical, laboratory and instrumental research data to monitor the efficacy and safety of medicines.

PLO 25. To promote health, including disease prevention, rational appointment and use of medicines. To perform professional duties in good faith, comply with the law on the promotion and advertising of medicines. To have psychological communication skills to build trust and understanding with colleagues, doctors, patients, consumers.

As a result of studying the educational component, the applicant for higher education will be

know:

- the fundamentals of deontology, the ethics of communication with medical staff, patients;
- the main clinical symptoms and syndromes of the most common diseases;
- approaches to medical treatment of the most common diseases;
- specific clinical symptoms of the most common diseases that require obligatory consultation by a physician;
- a list of diseases and pathological conditions when the responsible self-medication is possible, clinical manifestations which are typical for them;
- the basic principles of symptomatic treatment of diseases and pathological conditions when responsible self-medication is possible;
- features of innovative and generic drugs; requirements for generic drugs;
- clinical and pharmacological features of modern drugs of various pharmacological groups, including combined drugs;
- the influence of physical and chemical properties of drugs on their pharmacokinetic and pharmacodynamic properties;
- the ways of drug interaction in the patient body;
- advantages and disadvantages of the different dosage forms of the same drug of various pharmacological groups;
- the methods and criteria for assessment of the clinical efficacy of the main pharmacological groups;
- the clinical manifestations of possible side effects of various drugs, the ways of their correction and prophylaxis;
- the principles of classification of drugs on the prescribing and non-prescribing (over-the-counter, OTC) and the criteria for drug selection to include them in the non-prescription category;
- the algorithm of the proper OTC-drug choice for the treatment of diseases and pathological conditions when responsible self-medication is possible;
- the pharmacist's duties and degree of his responsibility for the effectiveness of pharmacotherapy during the pharmaceutical care providing.

be able to:

- adhere to the rules of pharmaceutical ethics and deontology; to solve a complex of tasks related to the relationship between the doctor and the patient;
- identify the known drugs using an international, trade, chemical name to refer them to a particular pharmacological and pharmacotherapeutic group;
- use regulatory documents and literature references about medicinal products;
- to determine the features of medicinal products, which are necessary to conduct a comparative characterization of medicines taking into account the chemical composition, mechanism of action and pharmacological properties based on the literature data and accompanying documentation;

- to collect a medical history of a patient;
- with the doctor in a particular clinical situation to provide the choice of the optimal drugs in every pharmacological group, their dosage form, doses and routes of administration, taking into account the peculiarities of their pharmacodynamics and pharmacokinetics, their interaction with simultaneous or earlier prescribed medicines, food, etc.,
- on the basis of the clinical diagnosis, taking into account the individual features of the patient (gender, age, concomitant diseases) to carry out the analysis of medical appointments and their correction;
- to determine the relationship of physicochemical properties with the pharmacokinetic and pharmacological parameters of drugs (bioavailability, route of administration, the possibility of penetration through histohematological barriers, etc.);
- to determine the main types of possible interaction (physical, chemical, pharmacological, pharmacodynamic) of medicinal products for optimization of combined therapy taking into account the pharmacological properties of drugs and the features of clinical pathology. To find the incompatibility of medicinal products according their physical, chemical, pharmacological and biopharmaceutical properties;
- to carry out, if necessary, with the doctor the replacement of one medicinal product with others;
- to determine the modulating effect of food on the pharmacokinetic and pharmacological properties of drugs (time and amount of absorption, duration of action, route of elimination, the possibility of manifestation of undesirable action, etc.);
- to determine the advantages and disadvantages of particular dosage form of particular medicinal products of various pharmacological groups taking into account the biopharmaceutical, pharmacokinetic and pharmacological features of the medicinal product, as well as the anatomical and physiological features of the patient (age, sex, physical condition, etc.);
- to calculate one-time, daily and course doses using of the regulatory documentation and taking into account the individual features of a person (age, sex, body weight, severity of the disease, adjacent pathology, etc.);
- interpret the instructions of the physician regarding the possible interaction of medicinal products prescribed for the patient, taking into account the history of the disease, clinical diagnosis, the condition of the patient and the results of his laboratory tests;
- to consult patients and doctors about the proper use of medicinal products;
- among the visitors of a pharmacy to determine a category of persons, which are requiring an obligatory consultation of a doctor and persons who may use self-medication;
- provide recommendations for the choosing of OTC drugs for symptomatic treatment: heartburn, constipation, diarrhea, flatulence, bacterial overgrowth syndrome (dysbiosis), colds, sore throat, cough, fever, headache, muscle aches, joint pain, asthenia, dyssomnia, anxiety states, local disorders of the blood circulation, traumatic skin lesions (burns, frostbites, cuts, bruises, abrasions, scratches), infectious skin lesions (acne, herpes, mycoses), as well as the prevention of colds;
- to carry out the pharmaceutical care of patients, to consult doctors and patients about rational use of over-the-counter drugs of various pharmacological groups: manifestations of clinical action, route and time of administration, interaction with food, etc.;
- to inform a doctors about all cases of inappropriate use of medicines.
- to fill out an adverse drug reaction registration form.

possess:

- methods of searching, collecting, analyzing, interpreting and providing medical information, collecting medical and allergic anamnesis;
- communicative technologies.

4. The educational component structure

| Names of content modules and topics | The amount of hours | | | |
|---|---------------------|-----------|------------|-------------|
| | the whole amount | including | | |
| | | lectures | pract | self-study |
| MODULE 1 | | | | |
| Content module 1. The basic principles of clinical pharmacy and clinical pharmacology. Clinical pharmacy in rheumatology, pulmonology, cardiology, hematology | | | | |
| Topic 1. Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice | 10 | - | 6 | 4 |
| Topic 2. Clinical pharmacy in pulmonology | 10 | 2 | 6 | 2 |
| Topic 3. Clinical pharmacy in rheumatology | 10 | 2 | 6 | 2 |
| Topic 4. Clinical pharmacy in cardiology | 10 | 2 | 6 | 2 |
| Topic 5. Clinical pharmacy in hematology | 10 | 2 | 3 | 5 |
| Content module 1 control | 10 | | 3 | 7 |
| The whole amount of hours for the content module 1 | 60 | 8 | 30 | 22 |
| Content module 2. Clinical pharmacy in nephrology, gastroenterology, hepatology, endocrinology, allergy | | | | |
| Topic 6. Clinical pharmacy in nephrology | 10 | 2 | 6 | 2 |
| Topic 7. Clinical pharmacy in gastroenterology | 10 | 2 | 6 | 2 |
| Topic 8. Clinical pharmacy in hepatology | 10 | 2 | 6 | 2 |
| Topic 9. Clinical pharmacy in endocrinology | 10 | 2 | 6 | 2 |
| Topic 10. Clinical pharmacy in allergy | 10 | 2 | 3 | 5 |
| Content module 2 control | 10 | | 3 | 7 |
| The whole amount of hours for the content module 2 | 60 | 10 | 30 | 20 |
| Semester credit from Module 1 | | | | |
| TOTAL AMOUNT OF HOURS OF THE MODULE 1 | 120 | 18 | 60 | 42 |
| MODULE 2 | | | | |
| Content module 3. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of different disorders of well-being I | | | | |
| Topic 11. Basic principles of pharmaceutical care | 12 | | 4 | 8 |
| Topic 12. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion | 12 | 2 | 8 | 2 |
| Topic 13. Pharmaceutical care during OTC-drugs dispensing for symptomatic treatment and prevention of cold | 12 | 2 | 8 | 2 |
| Topic 14. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain | 12 | 2 | 4 | 6 |
| Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache | 12 | 1 | 2 | 9 |
| Content module 3 control | 4 | | 2 | 2 |
| The whole amount of hours for the content module 3 | 64 | 7 | 28 | 29 |
| Content module 4. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of different disorders of well-being II | | | | |
| Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity | 12 | 2 | 4 | 6 |
| Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions | 12 | 1 | 8 | 3 |
| Topic 18. Pharmaceutical care during OTC drugs dispensing for preventive and therapeutic using of anthelmintics. Pharmaceutical care of patients with local disorders of blood circulation | 12 | 1 | 4 | 7 |
| Topic 19. Pharmaceutical care during OTC drugs dispensing for elimination and prevention of vitamin deficiency | 11 | 1 | 4 | 6 |
| Topic 20. Pharmaceutical care during OTC drugs dispensing for special groups of patients. Interaction of drugs with food and alcohol | 12 | 2 | 4 | 6 |
| Content module 4 control | 4.5 | | 4 | 0.5 |
| The whole amount of hours for the content module 4 | 63.5 | 7 | 28 | 28.5 |
| Semester credit from Module 2 | | | | |
| TOTAL AMOUNT OF HOURS OF THE MODULE 2 | 127.5 | 14 | 56 | 57.5 |
| SEMESTER EXAM | | | | |
| | 22.5 | | | 22.5 |
| <i>The whole amount of hours for the course</i> | | | | |
| | 270 | 32 | 116 | 122 |

5. Content of the educational component

MODULE 1

CONTENT MODULE 1. Basic principles of clinical pharmacy and clinical pharmacology. Clinical pharmacy in pulmonology, rheumatology, cardiology, hematology

Topic 1. Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice

The content of clinical pharmacy and its tasks. The relationship of clinical pharmacy with related educational components. The role of clinical pharmacy in the system of pharmaceutical education. The world experience of clinical pharmacy development. Ethics and deontology in medicine and pharmacy. Deontological aspects of "pharmacist – doctor", "pharmacist – patient", "pharmacist – visitor" of a chemists relationships. The role of a pharmacist in carrying out the rational medicinal therapy, increase of its efficiency and safety.

Definitions of the concepts "chemical name", "international non-proprietary name", "trade name" of a medicine. Original (brand) and generic medicines – definition of the concept, advantages and disadvantages, requirements to generic medicines. The modern concept of self-medication. OTC-drugs. The role of a pharmacist in the self-medication system. The concept of pharmaceutical care.

Principal aspects of medical documentation: the out-patient card of patient, the case record of an in-patient, the list of medical prescription.

Introduction to clinical pharmacology. Kinds of medicinal therapy. Clinical aspects of pharmacodynamics, pharmacokinetics of drug, definition of the concepts of "clinical effect", "side effect". Modern methods of assessment of pharmacological action of drugs in clinical pharmacology. Clinical efficiency of drugs. Selectivity of drug action and its clinical value. The factors affecting the clinical efficiency of drugs. Peculiarities of a human body (physiological peculiarities, the age periods, the presence of a concomitant pathology, etc.), which affect the pharmacokinetics and pharmacodynamics of drugs. Modern methods of drug therapeutic action control. Clinical pharmacological tests. Concept of "width of the therapeutic action", "therapeutic index", "minimal dose", "maximal dose", "course dose" in clinical pharmacology. Principles of control of the efficiency and safety of drug administration. The importance of clinical, laboratory and instrumental methods of patient's examination as criteria of efficiency and safety of medicinal therapy. Methodical approaches to the choice of adequate methods of efficiency control of the prescribed drugs of different pharmacological groups.

Drug monitoring, its importance. Therapeutic and toxicological monitoring; importance for clinical practice.

Interaction of the combined application of drugs: types of interaction (pharmaceutical, pharmacokinetic, pharmacodynamic) and the character of interaction manifestation (antagonistic, synergistic – potentiation, summation, additive, sensitive). Clinical manifestations of drug interaction. Combined medicines, their advantages and disadvantages.

Classification of types of adverse drug reactions (pathogenetic, by character of occurrence, forecasting, localization of manifestations, by character of the course, severity). Mechanisms of occurrence and methods of forecasting of possible development of negative effects of drugs. Dependence of negative effects on the dose, way and introduction mode. The concept of toxicodynamics and toxicokinetics of drugs. Clinical manifestations of negative effects of drugs. The basic undesirable phenomena of drug administration ("a ricochet" phenomenon, tolerance to therapy, drug dependence, etc.). The concept of placebo. Placebo-effectors. Negative placebo-effectors as a group of risk of adverse drug reaction development.

Drug effect on clinical laboratory indices and results of functional tests. Typical changes in the general analysis of blood, urine, the biochemical analysis of blood in case of various drugs administration. Ways of possible effect of drugs on laboratory indices. Chemical and pharmacological interference. Drug effect on functional tests results. Undesirable consequences of incorrect interpretation of laboratory research results. Ways of drug action reduction on results of clinical and laboratory researches. The role of a pharmacist in the process of increasing the diagnostic importance of clinical and instrumental methods of the patient's examination.

Prevention of occurrence and ways of correction of drug negative effects. The role of a pharmacist in decreasing the undesirable drug effect.

The medicinal anamnesis: definition of the concept, rules and technique of collecting, importance for increasing of the medicinal therapy efficiency.

Psychological aspects of mutual relations between a pharmacist and a patient. Compliance. Factors affecting the patients' compliance during the medicinal therapy, ways increasing compliance. The concept "quality of life" concerning patients with chronic diseases and disorders of general state. Drug effect on life duration, the life forecast and quality of life of patients. Importance of pharmaceutical care for improvement of patient's quality of life and population's level of health.

Good clinical practice (GCP) is international rules and standards of carrying out clinical trials of drugs. Phases and types of clinical trials. Ethical aspects and the acts that regulate the performance of clinical studies. The role of a pharmacist in carrying out clinical trials of drugs.

Topic 2. Clinical pharmacy in pulmonology

Symptoms and syndromes of the respiratory organ diseases: cough, dyspnea, thorax pain, fever, cyanosis, bronchoobstruction syndrome, respiratory distress syndrome.

The respiratory system diseases requiring obligatory intervention of a doctor (pneumonia, acute bronchitis, chronic bronchitis, bronchial asthma, chronic obstructive diseases of lungs / chronic obstructive bronchitis, emphysema of the lungs*, illness of smokers' small respiratory tracts*, pleurisy*, bronhoectatic disease*, lung abscess*, tuberculosis*). Dysfunctional condition of respiratory organs, can be treated with OTC drugs in terms of responsible self-medication with the advisory help of a pharmacist. Approaches to medicinal treatment of the respiratory organs diseases.

Clinical pharmacology of antimicrobial drugs for the respiratory organs diseases (penicillin, cephalosporins, carbapenems, macrolides, fluoroquinolones). Approaches to the rational choice of AB drugs for the respiratory organs diseases.

Clinical pharmacology of bronchodilators (β_2 -adrenomimetics, cholinolytics, derivatives of xanthine).

Clinical pharmacology of mucolytics, expectorants, anticough drugs of the central and peripheral action.

Clinical pharmacology of corticosteroids (systemic, inhalation), stabilizers of membranes of mastocytes.

Approaches to the rational choice of drugs for treating the respiratory organs diseases. Simultaneous administration of drugs used for the respiratory organs diseases; interaction with drugs of other pharmacological groups.

Peculiarities of drugs application for respiratory system diseases in case of accompanying pathology. Drugs with a negative affect on the respiratory organs.

Combined drugs for treating bronchoobstructive syndrome.

Adverse effects of drugs used to treating the respiratory system diseases. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern special dosage forms used for treating the respiratory system diseases (the dosed aerosol and powder inhalers, spacers, nebulizers, etc.), their clinical and biopharmaceutical peculiarities, rules and conditions of the rational use.

Criteria of efficiency and safety of medicinal therapy in pulmonology.

Principles of pharmaceutical care for symptomatic treatment of respiratory organs dysfunction. OTC drugs for symptomatic treatment of respiratory organs dysfunction. Assistance in smoking cessation.

Topic 3. Clinical pharmacy in rheumatology

Symptoms and syndromes in the basic systemic diseases of the connective tissue and exchange dystrophic diseases of joints: pain in joints and muscles, morning constraint, deformation of joints, "butterfly" symptom, acne rash, fever, tofus, chorea, articular syndrome, Raynaud's syndrome, dysfunction of joints, gouty attack.

Systemic diseases of the connective tissue and exchange dystrophic diseases of joints requiring obligatory intervention of a doctor (osteoarthritis, gout, osteoporosis; rheumatism / acute rheumatic fever, chronic rheumatic heart disease/, systemic lupus erythematosus, rheumatoid arthritis, scleroderma sys-

* It is studied as a definition.

tematica*). Dysfunctional condition of the locomotor system which can be treated with OTC drugs in terms of responsible self-medication with the advisory help of a pharmacist.

Approaches to medicinal treatment of locomotor system diseases.

Bicillin prevention and bicillin therapy in treatment of acute rheumatic fever and chronic rheumatic heart disease.

Clinical pharmacology of steroid and non-steroid anti-inflammatory drugs; basic anti-inflammatory drugs (derivatives of quinoline, cytostatics, medicines of gold), including drugs suppressing proliferation of the connective tissue.

Clinical pharmacology of metabolism correctors of the connective tissue (chondroprotectors), drugs of uricosuric actions; drugs affecting the structure and mineralization of the bone tissue (calcium drugs, etc.).

Approaches to the rational choice of drugs for treating the locomotor system diseases. Simultaneous administration of drugs used for the locomotor system diseases; interaction with drugs of other pharmacological groups; peculiarities of drug application in case of accompanying pathology. Drugs with a toxic effect on the condition of joints (chondrotoxic drugs).

Adverse reactions of drugs used for treating the locomotor system diseases. Forecasting, clinical manifestations, prevention and ways of elimination. The concept of NSAID-gastropathy. Reye's syndrome.

Modern special dosage forms used for treating the locomotor system diseases (soft dosage forms and solutions for intra-articular administration), their clinical and biopharmaceutical peculiarities, principles of the rational use.

Criteria of efficiency and safety of medicinal therapy for treating the locomotor system diseases.

Principles of pharmaceutical care of patients with pathology of the locomotor system that receive drugs according to doctor's prescription. OTC drugs for articular and muscular pain.

Topic 4. Clinical pharmacy in cardiology

Symptoms and syndromes of basic diseases of the cardiovascular system: dyspnea, orthopnea, acrocyanosis, palpitation, headache, pain syndrome, intermittent claudication syndrome, hydrops syndrome, dislipoproteinemia, arterial hypertension.

The cardiovascular system diseases requiring the obligatory intervention of a doctor (atherosclerosis, ischemic heart disease /angina pectoris, acute myocardial infarction, cardiosclerosis*, essential arterial hypertension, symptomatic arterial hypertension, hypertensive crisis, chronic heart failure, abnormalities of the heart rhythm). Approaches to medicinal treatment of the cardiovascular system diseases.

Clinical pharmacology of anti-anginal and hypotension drugs: nitrates and nitrate-like drugs, β -adrenoblockers, antagonists of calcium, blockers of peripheral adrenoreceptors, hypotension drugs of central action, blocker of ACE, blockers of angiotensin II receptors, diuretics.

Clinical pharmacology of hypolipidemic drugs (inhibitors of GMG-CoA reductase, fibric acid derivatives, nicotinic acid and its derivatives).

Clinical pharmacology of anti-coagulants, antiaggregants, fibrinolytics.

Clinical pharmacology of drugs which improve cerebral circulation; angioprotectors and antioxidants; drugs of metabolic action.

Combined drugs for arterial hypertension treatment.

Clinical pharmacology of cardiac glycosides, non-glycosides of positive inotropic agents. The problem of efficiency and safety of cardiac glycosides application. Clinical manifestations of cardiac glycosides intoxication, its treatment and prevention.

Clinical pharmacology of antiarrhythmic drugs.

Approaches to the rational choice of drugs for treating the cardiovascular system diseases. Simultaneous application of drugs used in cardiovascular system diseases; interaction with drugs of other pharmacological groups; peculiarities of drug application in case of accompanying pathology. Drugs having a negative effect on the safety of the cardiovascular system.

The adverse effects of drugs used in cardiology. Forecasting, clinical manifestations, prevention and ways of elimination.

* It is studied as a definition.

Modern special dosage forms used in cardiology (retard, with the modified release of an active substance), their clinical and biopharmaceutical peculiarities, rules and conditions of their rational use.

Criteria of efficiency and safety of medicinal therapy in cardiology.

Principles of pharmaceutical care of the cardiologic profile patients receiving drugs according to doctor's prescription. OTC drugs used in cardiology.

Topic 5. Clinical pharmacy in hematology

Syndromes of basic diseases of the hemopoietic system: circulatory hypoxic, sideropenic, hematologic, neurologic, hemorrhagic, asthenoneurotic.

Diseases of the hemopoietic system requiring obligatory intervention of a doctor (types of anaemia /iron-deficiency, megaloblastic — vitamin-B₁₂ – and folic acid deficiency anemia, hemolytic/; hemablastosis*/acute leukemia; myeloleukemia, chronic lymphatic leukemia; erythremia/). Approaches to medicinal treatment of the hemopoietic system diseases.

Clinical pharmacology of drugs of iron and other antianemic drugs.

Clinical pharmacology of drugs stimulating or inhibiting erythro- and leukopoiesis.

Approaches to the rational choice of drugs in the hemopoietic system diseases. Simultaneous administration of drugs affecting hemopoiesis; interaction with drugs of other pharmacological groups; peculiarities of administration in case of accompanying pathology. Principles of the rational use of iron drugs and vitamins of group B. Drugs that have a toxic effect on the condition of the hemopoietic system.

Adverse effects of drugs used in hematology. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern special dosage forms of iron drugs (drops, solutions for oral administration, capsules, etc.), their clinical and biopharmaceutical peculiarities, rules and conditions of the rational use.

Criteria of efficiency and safety of medicinal therapy in hematology.

Principles of pharmaceutical care of patients with pathology of the hemopoietic system.

CONTENT MODULE 2. Clinical pharmacy in nephrology, gastroenterology, hepatology, endocrinology, allergy

Topic 6. Clinical pharmacy in nephrology

Symptoms and syndromes of basic diseases of kidneys and urinary ways: Pasternatsky's symptom, pain syndrome, uric syndrome, nephrotic syndrome, hydropic syndrome, syndrome of arterial renal hypertension, renal anemic syndrome, dysuric syndrome, syndrome of the chronic renal failure.

Diseases of kidneys and urinary ways requiring obligatory intervention of a doctor (acute kidney damages: acute pyelonephritis, acute glomerulonephritis; chronic renal disease: chronic pyelonephritis, chronic glomerulonephritis; infections of the urinary tract: acute cystitis, chronic cystitis; urolithiasis). Complications of renal diseases: symptomatic arterial hypertension (renoparenchymatous and renovascular one), chronic renal failure, renal anemia. Approaches to medicinal treatment of diseases of kidneys and urinary tract.

Clinical pharmacology of main drugs for treating infectious and immune-inflammatory diseases of kidneys and urinary tract (AB drugs/ β-lactams, fluoroquinolones, aminoglycosides, derivative of 8-oxychinoline, nitrofuranes, steroid and non-steroid anti-inflammatory drugs, immunosuppressants, direct anticoagulants, antiaggregants, uroantiseptics, urolytics, spasmolytics, analgesics, diuretics, hypototics).

Approaches to the rational choice of AB drugs for infectious diseases of kidneys and urinary tract. Approaches to the rational choice of drugs for treating diseases of kidneys and urinary tract. The Simultaneous administration of drugs affecting the function of kidneys and urinary tract; interaction with drugs of other pharmacological groups. Peculiarities of drugs used in nephrology in case of accompanying pathology. Drugs with toxic effect on the condition of kidneys. The influence of functional condition of kidneys on the clinical efficiency of drugs, correction peculiarities of the dose regimen and administration.

Principles of treatment of kidney diseases complications: use of anti-hypertensive detoxification drugs, recombinant erythropoietins.

* It is studied as a definition.

Adverse effects of drugs used for treating the urinary system diseases. Forecasting, clinical manifestations, prevention and ways of elimination.

Criteria of efficiency and safety of medicinal therapy in nephrology.

Principles of pharmaceutical care of patients with diseases of kidneys and urinary tract. OTC drugs used for the urinary system diseases.

Topic 7. Clinical pharmacy in gastroenterology

Symptoms and syndromes of basic diseases of the gastro-intestinal tract: appetite disorder, eructation, heartburn, nausea, vomiting, constipation, diarrhea, flatulency; syndromes of gastric dyspepsia, intestinal dyspepsia, exocrinous pancreatic impairment, insufficiency of digestion (maldigestion) and absorption (malabsorption), polyhypovitaminosis, astenoneurotic, painful, anemic; bacterial overgrowth syndrome (dysbiosis).

Diseases of GIT and pancreas requiring obligatory intervention of a doctor (gastritis and duodenitis; chronic Helicobacter-associated gastritis; stomach ulcer, duodenal ulcer, chronic pancreatitis, dyspepsia, non-infectious gastroenteritis and colitis*). Complications of diseases of GIT organs: bleeding, penetration, perforation, malignancy, stenosis, vitamin B₁₂-deficiency anemia. Disorders of digestion, which can be treated with OTC drugs in terms of responsible self-medication with the advisory help of a pharmacist. Approaches to medicinal treatment of diseases of GIT and pancreas.

Clinical pharmacology of drugs used for treating hypoacid conditions. Drugs of replacement and stimulating therapy.

Clinical pharmacology of antacids and anti-secretion drugs (antacids, selective M₁-anticholinergic drugs, blockers H₂-histamine receptors, H⁺, K⁺-ATPh inhibitors).

Clinical pharmacology of drugs which increase protective properties of the mucous membrane of the stomach and promote its regeneration (reparants and gastrocytoprotectors).

Clinical pharmacology of drugs for Helicobacter pylori eradication (AB drugs of group of macrolides, penicillins, tetracyclines, nitroimidazol derivatives). Combined drugs.

Clinical pharmacology of drugs, which increase the tonus and stimulate motility of GIT (agonists of acetylcholine, antagonists of dopamine receptors), as well as antiemetic, antidiarrheal and laxative drugs.

Clinical pharmacology of polyenzymatic drugs.

Drugs for elimination of the pain syndrome in diseases of GIT (spasmolytics).

Approaches to the rational choice of drugs in diseases of GIT and pancreas. Simultaneous administration of drugs affecting the function of GIT and pancreas; interaction with drugs of other pharmacological groups. Peculiarities of drug administration in gastroenterology in case of accompanying pathology. Drugs that have a toxic effect on condition of GIT and pancreas. The influence of the functional condition of the stomach, intestines and pancreas on clinical efficiency of drugs.

Adverse effects of drugs in diseases of GIT and pancreas. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern special dosage forms used for treating diseases of GIT and pancreas (suspensions, gels for intake, tablets for chewing, capsules with minimicrospheres, etc.), their clinical and biopharmaceutical peculiarities, rules and conditions of the rational use.

Criteria of efficiency and safety of medicinal therapy in gastroenterology.

Principles of pharmaceutical care of patients with the gastroenterological profile. OTC drugs in diseases of the GIT and pancreas.

Topic 8. Clinical pharmacy in hepatology

Symptoms and syndromes of basic diseases of the hepatobiliary system: skin itch, fever, ascites; pain syndrome, jaundice syndrome, cholestasis, portal hypertension, hepatic impairment, intestinal dyspepsia, hepatolienal syndrome, hemorrhagic syndrome, laboratory syndromes (cytolysis, cholestasis, hepatic-cellular insufficiency).

Diseases of the hepatobiliary system requiring obligatory intervention of a doctor (chronic hepatitis, cirrhosis, cholelithiasis, chronic cholecystitis). Disorders of the functional condition of the hepatobiliary system, which can be treated with OTC drugs in terms of responsible self-medication with the advisory help of a pharmacist. Approaches to medicinal treatment of the diseases of liver and gallbladder.

* It is studied as a definition.

Clinical pharmacology of hepatoprotectors, cholagogues, choleretics, cholekinetics, cholelytics, vitamins.

Clinical pharmacology of immunodepressive (corticosteroids) and hypoammonemic drugs.

Clinical pharmacology of drugs for treating viral and bacterial infections of the hepatobiliary system (α -interferons, nucleotide analogues; penicillins, tetracyclines, cephalosporins, fluoroquinolones).

Clinical pharmacology of desintoxication therapy agents (enterosorbents, combined infusion solutions).

Clinical pharmacology of drugs for elimination of the pain syndrome (myotropic spasmolytics, M-anticholinergic drugs).

Approaches to the rational choice of drugs in diseases of the hepatobiliary system. Simultaneous administration of drugs affecting the function of the hepatobiliary system; interaction with drugs of other pharmacological groups; peculiarities of drug administration in case of accompanying pathology. Drugs that have a toxic effect on the liver condition. The influence of the functional condition of liver on the bioavailability and clinical efficiency of drugs.

Adverse effects of drugs used in hepatology. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern special dosage forms in diseases of the hepatobiliary system, their clinical and biopharmaceutical peculiarities (combined infusion solutions), rules and conditions of the rational use.

Criteria of efficiency and safety of medicinal therapy in hepatology.

Principles of pharmaceutical care of patients with pathology of the hepatobiliary system. OTC drugs in diseases of the hepatobiliary system.

Topic 9. Clinical pharmacy in endocrinology

Symptoms and syndromes of basic diseases of the endocrine system: polydipsia, polyphagia, polyuria, exophthalmus, goiter, hyperglycemia syndrome, hypoglycemia syndrome, hyperthyroidism syndrome, hypothyroidism syndrome, iodine deficiency syndrome.

Endocrine diseases (diabetes mellitus type I and II, hyperthyroidism, hypothyroidism) requiring compulsory medical intervention. Typical complications of diabetes mellitus (hypo- and hyperglycemic coma, diabetic polyneuropathy, diabetic nephropathy, diabetic retinopathy, diabetic foot syndrome). The states and conditions (the syndrome of iodine deficiency, pregnancy, period of growth, residence in endemic unfavourable areas), when it is possible to use OTC drugs in terms of responsible self-medication with the advisory help of a pharmacist. Approaches to medicinal treatment of the endocrine system diseases.

Clinical pharmacology of insulin drugs. Approaches to the rational choice of insulin drugs. Possible complications of insulin therapy.

Clinical pharmacology of oral hypolipidemic drugs (sulfonamide derivatives, biguanides, thiazolidinediones, metformin, inhibitors of α -glucosidase). Approaches to the rational choice. The interaction of oral hypoglycemic drugs with drugs of other pharmaceutical groups. Peculiarities of oral hypoglycemic drugs application in case of concomitant pathology. Drugs affecting the level of glycemia.

Principles of treatment of diabetes complications: use of insulin antagonists, antihypertensive, hypoglycemic drugs, angioprotectors, antiaggregants, peripheral vasodilators, vitamins.

Clinical pharmacology of hormone drugs of the thyroid gland, antithyroid drugs, iodine drugs.

Adverse effects of drugs used in endocrinology. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern dosage forms used for treating diseases of the endocrine system, their clinical and biopharmaceutical peculiarities, rules and conditions of their rational use.

Criteria of efficiency and safety of medicinal therapy in endocrinology.

Principles of pharmaceutical care of patients with the endocrinological profile. Algorithm of actions of a pharmacist and pharmaceutical care while dispensing drugs for treating iodine deficiency.

Topic 10. Clinical pharmacy in allergy

Symptoms and syndromes of allergy: itch, hyperemia, edema of skin and mucous membranes, skin rash, dyspnea, sneezing, rhinorrhea, lacrimation, bronchospasm, decrease of arterial pressure, tachycardia, hyperemia; skin syndrome, hydropic syndrome, respiratory syndrome, syndrome of acute cardiovascular failure, asthenoneurotic syndrome.

Diseases of allergic origin (acute and chronic urticaria, asthenoneurotic edema, allergic rhinitis, allergic conjunctivitis, anaphylactic shock) requiring the obligatory intervention of a doctor. Symptoms and syn-

dromes of allergic origin, which can be treated with OTC drugs in terms of responsible self-medication with the advisory help of a pharmacist. Approaches to medicinal treatment of allergic conditions.

Clinical pharmacology of drugs used for treating allergy (corticosteroids, antihistamines drugs, bronchodilators, drugs of calcium, stabilizers of mastocytes membranes, agonists of α - and β - adreno-receptors). Detoxication therapy.

Approaches to the rational choice of drugs in diseases of the allergic origin. Simultaneous administration of antiallergic drugs; interaction with drugs of other pharmacological groups; peculiarities of antiallergic drugs administration in case of accompanying pathology.

Adverse effects of drugs used in allergology. Forecasting, clinical manifestations, prevention and ways of elimination.

Modern dosage forms used in diseases of the allergic origin, their clinical and biopharmaceutical peculiarities, rules and conditions of the rational use.

Criteria of efficiency and safety of medicinal therapy in allergology.

Principles of pharmaceutical care of allergic patients, OTC drugs used in diseases of the allergic origin.

Drug disease. Difference from other conditions caused by drug administration (overdose, intoxication, bacterial overgrowth syndrome, etc.). The causes of occurrence, basic clinical variants of manifestation of drug disease. Syndromes of drug disease (Lyell's syndrome, Stevens-Johnson syndrome). Polypharmacy as the cause of medicinal therapy complications. Pharmacological features of drugs, which cause drug disease more often. Prevention and medicament approaches to elimination of drug disease manifestations. The role of a pharmacist in drug disease prevention.

SEMESTER CREDIT

MODULE 2

CONTENT MODULE 3. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of different disorders of well-being II

Topic 11. Basic principles of pharmaceutical care

Definition and the basic concepts of pharmaceutical care. The place of pharmaceutical care in the general system of public health services for the population. Relationship of a pharmacist and other medical workers (doctor, nurse, etc.) when carrying out pharmaceutical care. The algorithm of action of a pharmacist when carrying out the appropriate pharmaceutical care for chemist's shops visitors, patients during OTC drugs dispensing for symptomatic treatment of harmless for life health disorders. The algorithm of presentation of the appropriate drug information to visitors of chemist's/patients by a pharmacist while carrying out pharmaceutical care. The role of the pharmacist in the making up of first aid kits.

Practical functions of a pharmacist that are necessary for care realization (procedure of drug anamnesis gathering, working out the plan of monitoring of adverse drug reactions, preventive actions in possible manifestations of adverse drug reactions, etc.).

OTC-drugs. Criteria according to which medicines are classified as prescription or OTC drugs. Normative and legislative acts concerning OTC drugs dispensing.

The concept of generic and therapeutic replacement. The pharmacist's competence when choosing OTC drugs for responsible self-medication and in replacement of OTC drugs.

Categories of problems which arise during the patient's intake of drugs; problems belonging to the competence of a pharmacist and a doctor, algorithm of their definition. Protocol of pharmacist's activity when receiving information about cases of adverse reactions and/or lack of efficacy of medicines.

Topic 12. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion

The basic symptoms of indigestion (heartburn, constipation, diarrhea, flatulence, bacterial overgrowth syndrome/dysbiosis), which can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of indigestion when the intervention of a doctor is necessary (the algorithm of choosing patients for obligatory examination of a doctor).

Directions and remedies of symptomatic medicinal therapy of heartburn, constipation, diarrhea, flatulency, bacterial overgrowth syndrome (dysbiosis). The algorithm of carrying out pharmaceutical

care for visitors of chemist's shops/patients with indigestion symptoms. The algorithm of the appropriate information presentation by a pharmacist about OTC drugs for treating indigestion while carrying out pharmaceutical care for visitors of chemist's shops/patients.

Modern dosage forms for treatment of indigestion and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of indigestion with food, alcohol; peculiarities of their application in various age periods; requirements for storing drugs at home. Criteria of efficiency of therapy with OTC drugs used for symptomatic treatment of indigestion.

Non-medicament methods of elimination of symptoms of indigestion.

Topic 13. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment and prevention of cold

The basic symptoms of cold (cough, rhinitis, sore throat, fever, etc.) which can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of cold when the intervention of a doctor is necessary (the algorithm of choosing patients for obligatory examination of a doctor).

Approaches and remedies of symptomatic medicinal therapy of colds. The algorithm of carrying out pharmaceutical care of the visitors of chemist's shops/patient with cold symptoms. The algorithm of presentation of the appropriate information about OTC drugs by a pharmacist for treating cold when carrying out pharmaceutical care of visitors of chemist's shops/patients.

Modern dosage forms for treatment of cold and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of colds with food, and alcohol; peculiarities of their administration in various age periods; requirements for storing drugs at home. Criteria of efficiency of the therapy with OTC drugs used for symptomatic treatment of cold.

Non-medicament methods of elimination of symptoms of cold.

Approaches to prevention of colds. The algorithm of carrying out pharmaceutical care of visitors of chemist's shops/patient while choosing drugs for prevention of colds. The algorithm of presentation the appropriate information about OTC drugs by a pharmacist for cold prevention when carrying out pharmaceutical care of visitors of chemist's shops/patients. Modern dosage forms for cold prevention, peculiarities of their use.

Non-medicament methods of cold prevention.

Topic 14. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain

Basic symptoms of the musculoskeletal system dysfunction (joint and muscle pain), which can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of the musculoskeletal system dysfunction for when intervention of a doctor is necessary (the algorithm of choice of patients for an obligatory examination of a doctor).

Directions and remedies of symptomatic medicinal therapy of pain in muscles and joints. The algorithm of carrying out pharmaceutical care for visitors of chemist's shops/patients with symptoms of the musculoskeletal system dysfunction. The algorithm of presentation the appropriate information about OTC drugs by a pharmacist for treating pain in muscles and joints while carrying out pharmaceutical care for visitors of chemist's shops/patients.

Modern dosage forms for treatment of dysfunction of the musculoskeletal system (creams, gels) and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of pain in muscles and joints with food and alcohol; peculiarities of their administration in various age periods; requirements for storing drugs at home. Criteria of efficiency of OTC drugs therapy used for symptomatic treatment of dysfunction of the musculoskeletal system.

Non-medicament methods of elimination of muscle and joint pain.

Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache

The concept about primary (migraine, strain headache) and a secondary (symptomatic) headache. Pathological conditions and diseases accompanied with headache. Factors which promote headache development.

Types of headache which can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of headache requiring intervention of a doctor (the algorithm of choosing patients for obligatory examination of a doctor).

Approaches and remedies of symptomatic medicinal therapy of headache. The algorithm of carrying out pharmaceutical care for visitors of chemist's shops/patients with headache. The algorithm of appropriate information about OTC drugs presentation by a pharmacist for treating headache while carrying out pharmaceutical care for visitors of chemist's shops/patients.

Modern dosage forms for treatment of headache (quick-soluble tablets, capsules of the prolonged action, etc.) and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of headache with food and alcohol; peculiarities of their administration in various age periods; requirements for storing drugs at home. Criteria of efficiency of the therapy with OTC drugs used for symptomatic treatment of headache.

Non-medicament methods of elimination of the headache.

CONTENT MODULE 4. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of different disorders of well-being II

Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity

The basic symptoms of disorders of the nervous system activity (anxiety, asthenia, dyssomnia) which can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of disorders of the nervous system activity when the intervention of a doctor is necessary (the algorithm of choosing patients for obligatory examination of a doctor).

Approaches and remedies of symptomatic medicinal therapy of anxiety, asthenia, dyssomnia, stress. The algorithm of carrying out pharmaceutical care for visitors of chemist's shops/patients with symptoms of disorders of the nervous system activity. The algorithm of the appropriate information about OTC drugs presentation by a pharmacist for treating disorders of the nervous system activity while carrying out pharmaceutical care for visitors of chemist's shops/patients.

Modern dosage forms for treatment of disorders of the nervous system activity and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of disorders of the nervous system activity with food, alcohol; peculiarities of their administration in various age periods; requirements for storing drugs at home. Criteria of efficiency of therapy with OTC drugs used for symptomatic treatment of disorders of the nervous system activity.

Non-medicament methods of elimination of symptoms of the nervous system activity disorders.

Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions

Lesions of integuments: microtraumas (cuts, abrasions, scratches), thermal and chemical damages of surface skin layers (burns, frostbite), acne (acne rash), infectious damages (herpes of lips, mycoses, scabies, pediculosis), seborrhea, etc. which can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of skin lesions requiring obligatory examination of a doctor.

The algorithm of carrying out pharmaceutical care for visitors of chemist's shops/patients with symptoms of skin lesions. Approaches to symptomatic treatment of skin lesions. OTC drugs used for skin lesions. The algorithm of the appropriate information about OTC drugs presentation by a pharmacist when carrying out pharmaceutical care for visitors of chemist's shops/patients for symptomatic treatment of skin lesions.

Modern dosage forms for treatment and prevention of traumatic, infectious and parasitic skin lesions, peculiarities of their use. Non-medicament methods of elimination of symptoms of traumatic, infectious and parasitic skin lesions

Topic 18. Pharmaceutical care during OTC drugs dispensing for preventive and therapeutic using of anthelmintics. Pharmaceutical care of patients with local disorders of blood circulation

Definition of helminthiasis. «Threatening» symptoms of helminthiasis requiring intervention of a doctor. Approaches of antihelminthic therapy. The algorithm of carrying out pharmaceutical care of the visitors of chemist's shops/patient with helminthiasis. The algorithm of the appropriate information

presentation by a pharmacist about OTC drugs for treatment of helminthiases while carrying out pharmaceutical care for visitors of chemist's shops/patients.

Local disorders of the blood circulation: varicose veins of the lower extremities, hemorrhoid. Symptoms which are typical for local blood circulation disorders that can be treated with OTC drugs in terms of responsible self-medication. «Threatening» symptoms of varicose veins of the lower extremities and hemorrhoid requiring obligatory examination of a doctor (the algorithm of choosing patients for obligatory examination of a doctor).

The algorithm of carrying out pharmaceutical care for visitors of chemist's shops/patients with complaints of local disorders of the blood circulation.

The algorithm of the appropriate information about OTC drugs presentation by a pharmacist about OTC drugs for treating local blood circulation disorders while carrying out pharmaceutical care for visitors of chemist's shops/patients.

Modern dosage forms for treatment of local disorders of the blood circulation and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of local disorders of the blood circulation with food, alcohol; peculiarities of their administration in various age periods; requirements for storing drugs at home. Criteria of efficiency of OTC drugs therapy used for symptomatic treatment of local disorders of the blood circulation.

Non-medicament methods of elimination of symptoms of blood circulation local disorders.

Topic 19. Pharmaceutical care during OTC drugs dispensing for elimination and prevention of vitamin deficiency

Pathological conditions and factors promoting development of vitamin deficiency. «Threatening» symptoms of vitamin deficiency requiring intervention of a doctor (the algorithm of choosing patients for obligatory examination of a doctor).

Approaches and remedies of elimination and prevention of vitamin deficiency. The algorithm of address choice of OTC vitamin-containing drugs, the dosage forms and the routes of administration. The algorithm of the appropriate information about OTC drugs presentation by a pharmacist for elimination and prevention of vitamin deficiency when carrying out pharmaceutical care for visitors of chemist's shops/patients.

Modern dosage forms for elimination and prevention of vitamin deficiency (gels, syrups, drops, etc.) and peculiarities of their use. The interaction of OTC vitamin-containing drugs with food, alcohol; peculiarities of their use for different groups of population (newborns, children, teenagers, elderly and old people, individuals with concomitant pathologies, pregnant and breast-feeding women). Requirements for storing vitamin-containing drugs at home. Criteria of efficiency of therapy with OTC drugs for elimination and prevention of vitamin deficiency. Signs of vitamin overdose, ways of its prevention and treatment

Topic 20. Pharmaceutical care during OTC drugs dispensing for special groups of patients. Interaction of drugs with food and alcohol

Pharmaceutical care as the pharmacist's responsibility for efficiency of the medicinal therapy to the individual visitor of chemist's shop/patient. Categories of the population requiring special attention during responsible self-medication. Approaches to pharmaceutical care of elderly and old people, teenagers, newborn, pregnant women and women in the period of lactation. Physiological factors stipulating the peculiarities of pharmacokinetics and pharmacodynamics of drugs in pregnant women.

The interaction of drugs and food, clinical and pharmacological aspects of interaction. The major factors, which are important for interaction of drugs and food. The ways of a possible effect of food on pharmacological properties of drugs.

Clinical and pharmacological aspects of using alcohol in medicine. Clinical and pharmacological features of alcohol. The interaction of ethanol with drugs. Clinical and pharmacological aspects of chronic alcohol abuse.

The role of a pharmacist and the place of pharmaceutical care in prevention of undesirable interaction of drugs with food and alcohol. Modern dosage forms for children, their advantages, peculiarities of administration. Possible effect of drugs on the course of pregnancy, delivery and lactation.

SEMESTER CREDIT

SEMESTER EXAM

6. Topics of lectures

| № | Name of topic | Hours |
|----------------------------------|--|-----------|
| 1. | Topic 1. Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice | |
| 2. | Topic 2. Clinical pharmacy in pulmonology | 2 |
| 3. | Topic 3. Clinical pharmacy in rheumatology | 2 |
| 4. | Topic 4. Clinical pharmacy in cardiology | 2 |
| 5. | Topic 5. Clinical pharmacy in hematology | 2 |
| 6. | Topic 6. Clinical pharmacy in nephrology | 2 |
| 7. | Topic 7. Clinical pharmacy in gastroenterology | 2 |
| 8. | Topic 8. Clinical pharmacy in hepatology | 2 |
| 9. | Topic 9. Clinical pharmacy in endocrinology | 2 |
| 10. | Topic 10. Clinical pharmacy in allergy | 2 |
| 11. | Topic 11. Basic principles of pharmaceutical care | |
| 12. | Topic 12. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion | 2 |
| 13. | Topic 13. Pharmaceutical care during OTC-drugs dispensing for symptomatic treatment and prevention of cold | 2 |
| 14. | Topic 14. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain | 2 |
| 15. | Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache | 1 |
| 16. | Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity | 2 |
| 17. | Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions | 1 |
| 18. | Topic 18. Pharmaceutical care during OTC drugs dispensing for preventive and therapeutic using of anthelmintics. Pharmaceutical care of patients with local disorders of blood circulation | 1 |
| 19. | Topic 19. Pharmaceutical care during OTC drugs dispensing for elimination and prevention of vitamin deficiency | 1 |
| 20. | Topic 20. Pharmaceutical care during OTC drugs dispensing for special groups of patients. Interaction of drugs with food and alcohol | 2 |
| The whole amount of hours | | 32 |

7. Topics of seminars — Not provided by curriculum.

8. Topics of practical lessons

| № | Name of topic | Hours |
|----|---|-------|
| 1 | Topic 1. Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice | 6 |
| 2 | Topic 2. Clinical pharmacy in pulmonology | 6 |
| 3 | Topic 3. Clinical pharmacy in rheumatology | 6 |
| 4 | Topic 4. Clinical pharmacy in cardiology | 6 |
| 5 | Topic 5. Clinical pharmacy in hematology | 3 |
| 6 | Topic 6. Clinical pharmacy in nephrology | 6 |
| 7 | Topic 7. Clinical pharmacy in gastroenterology | 6 |
| 8 | Topic 8. Clinical pharmacy in hepatology | 6 |
| 9 | Topic 9. Clinical pharmacy in endocrinology | 6 |
| 10 | Topic 10. Clinical pharmacy in allergy | 3 |
| 11 | Topic 11. Basic principles of pharmaceutical care | 4 |
| 12 | Topic 12. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion | 8 |

| № | Name of topic | Hours |
|----|--|------------|
| 13 | Topic 13. Pharmaceutical care during OTC-drugs dispensing for symptomatic treatment and prevention of cold | 8 |
| 14 | Topic 14. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain | 4 |
| 15 | Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache | 2 |
| 16 | Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity | 4 |
| 17 | Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions | 8 |
| 18 | Topic 18. Pharmaceutical care during OTC drugs dispensing for preventive and therapeutic using of anthelmintics. Pharmaceutical care of patients with local disorders of blood circulation | 4 |
| 19 | Topic 19. Pharmaceutical care during OTC drugs dispensing for elimination and prevention of vitamin deficiency | 4 |
| 20 | Topic 20. Pharmaceutical care during OTC drugs dispensing for special groups of patients. Interaction of drugs with food and alcohol | 4 |
| | Content module 1, 2, 3, 4 control | 12 |
| | The whole amount of hours | 116 |

9. Topics of laboratorial lessons — Not provided by curriculum.

10. Self-study work

| № | Name of topic | Hours |
|----|--|-------|
| 1 | Topic 1. Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice | 4 |
| 2 | Topic 2. Clinical pharmacy in rheumatology | 2 |
| 3 | Topic 3. Clinical pharmacy in pulmonology | 2 |
| 4 | Topic 4. Clinical pharmacy in cardiology | 2 |
| 5 | Topic 5. Clinical pharmacy in hematology | 5 |
| 6 | Topic 6. Clinical pharmacy in nephrology | 2 |
| 7 | Topic 7. Clinical pharmacy in gastroenterology | 2 |
| 8 | Topic 8. Clinical pharmacy in hepatology | 2 |
| 9 | Topic 9. Clinical pharmacy in endocrinology | 2 |
| 10 | Topic 10. Clinical pharmacy in allergy | 5 |
| 11 | Topic 11. Basic principles of pharmaceutical care | 8 |
| 12 | Topic 12. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment and prevention of cold | 2 |
| 13 | Topic 13. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion | 2 |
| 14 | Topic 14. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache | 6 |
| 15 | Topic 15. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache | 9 |
| 16 | Topic 16. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity | 6 |
| 17 | Topic 17. Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions | 3 |
| 18 | Topic 18. Pharmaceutical care during OTC drugs dispensing for preventive and therapeutic using of anthelmintics. Pharmaceutical care of patients with local disorders of blood circulation | 7 |

| № | Name of topic | Hours |
|----------------------------------|---|------------|
| 19 | Topic 19. Pharmaceutical care during OTC drugs dispensing for elimination and prevention of vitamin deficiency | 6 |
| 20 | Topic 20. Pharmaceutical care during OTC drugs dispensing for special groups of patients. Interaction of drugs with food and alcohol | 6 |
| | Content module 1, 2, 3, 4 control | 16.5 |
| | SEMESTER EXAM | 22.5 |
| The whole amount of hours | | 122 |

Tasks for self-study work

Principal aspects of medical documentation. Clinical pharmacological tests. Placebo-effectors. Negative placebo-effectors as a group of risk of adverse drug reaction development. The concept «quality of life» concerning patients with chronic diseases and disorders of general state

Definition of «emphysema of lungs», «pleurisy», «bronchoectatic disease», «lung abscess», «tuberculosis». Clinical pharmacology of carbapenems. Modern special dosage forms used for treating the respiratory system diseases

Definition of «scleroderma systematica». Bicillinoprophylaxis and bicillinotherapy. Clinical pharmacology of basic anti-inflammatory drugs (derivatives of quinoline, cytostatics, medicines of gold), including drugs suppressing proliferation of the connective tissue. Drugs affecting the structure and mineralization of the bone tissue

Definition of «cardiosclerosis». Clinical pharmacology of drugs, which improve cerebral circulation; angioprotectors and antioxidants; drugs of metabolic action; non-glycosides of positive inotropic agents; antiarrhythmic drugs. Drugs having a negative effect on the safety of the cardiovascular system

Definition of hemoblastosis (acute leukemia myeloleukemia, chronic lymphatic leukemia), erythremia. Clinical pharmacology of drugs, which stimulate or inhibit erythro- and leukopoiesis. Drugs which toxically affect the condition of hemopoietic system

Chronic cystitis: definition, symptoms, syndroms, approaches to treatment. Symptomatic arterial hypertension (renoparenchimatous and renovascular one): definition, symptoms, syndroms, approaches to treatment. Clinical pharmacology of hypoosotemics

Clinical pharmacology of drugs which increase tonus and stimulate motility of GIT (agonists of acetylcholine, antagonists of dopamine receptors), and antiemetic drugs. Drugs that have a toxic effect on condition of GIT and pancreas

Chronic pancreatitis: symptoms, syndromes. Clinical pharmacology of polyenzyme drugs

Chronic cholecystitis: symptoms, syndromes, approaches to the treatment, clinical pharmacology of antibacterial drugs, criteria of efficiency and safety of chosen treatment

Clinical pharmacology of drugs for treating viral and bacterial infections of the hepatobiliary system (α -interferons, nucleotide analogues; penicillins, tetracyclines, cephalosporins, fluoroquinolones). Clinical pharmacology of detoxication therapy agents (enterosorbents, combined infusion solutions)

Endemic goiter, diabetic polyneuropathy, diabetic nephropathy: clinical manifestations, approaches to the treatment, clinical pharmacology of drugs, criteria of efficiency and safety of chosen treatment

Syndromes of drug disease (Lyell's syndrome, Stevens-Johnson syndrome). Polypharmacy as the cause of medicinal therapy complications

Practical functions of a pharmacist that are necessary for care realization (procedure of drug anamnesis gathering, working out the plan of monitoring of adverse drug reactions, preventive actions in possible manifestations of adverse drug reactions, etc.).

Modern dosage forms for treatment of cold and peculiarities of their use. Non-medicament methods of elimination of symptoms of cold

Modern dosage forms for treatment of indigestion and peculiarities of their use. Non-medicament methods of elimination of symptoms of indigestion

Modern dosage forms for treatment of headache (quick-soluble tablets, capsules of the prolonged action, etc.) and peculiarities of their use. Non-medicament methods of elimination of the headache

Modern dosage forms for treatment of dysfunction of the musculoskeletal system (creams, gels) and peculiarities of their use. Non-medicament methods of elimination of muscle and joint pain

Modern dosage forms for treatment of disorders of the nervous system activity (anxiety, asthenia, dyssomnia) and peculiarities of their use. Non-medicament methods of elimination of symptoms of the nervous system activity disorders

Modern dosage forms for treatment and prevention of traumatic, infectious and parasitic skin lesions, peculiarities of their use. Non-medicament methods of elimination of symptoms of traumatic, infectious and parasitic skin lesions

Modern dosage forms for treatment of local disorders of the blood circulation and peculiarities of their use. The interaction of OTC drugs used for symptomatic treatment of local disorders of the blood circulation with food, alcohol; peculiarities of their administration in various age periods; requirements for storing drugs at home. Criteria of efficiency of OTC drugs therapy used for symptomatic treatment of local disorders of the blood circulation.

Non-medicament methods of elimination of symptoms of blood circulation local disorders.

The algorithm of the appropriate information presentation by a pharmacist about OTC drugs for treatment of helminthiases while carrying out pharmaceutical care for visitors of chemist's shops/patients

Criteria of efficiency of therapy with OTC drugs for elimination and prevention of vitamin deficiency. Signs of vitamin overdose, ways of its prevention and treatment.

The interaction of drugs and food, clinical and pharmacological aspects of interaction. The major factors, which are important for interaction of drugs and food. The ways of a possible effect of food on pharmacological properties of drugs.

Clinical and pharmacological aspects of using alcohol in medicine. Clinical and pharmacological features of alcohol. The interaction of ethanol with drugs. Clinical and pharmacological aspects of chronic alcohol abuse.

The role of a pharmacist and the place of pharmaceutical care in prevention of undesirable interaction of drugs with food and alcohol. Modern dosage forms for children, their advantages, peculiarities of administration. Possible effect of drugs on the course of pregnancy, delivery and lactation.

11. Criteria and evaluation order of educational outcomes

Success of applicant in each semester is estimated by 100-point scale which consists of assessment for theoretical and practical training at each class, self-study work, results of content module control which is conducted at the last class of the content module 1 and 2.

The maximum points, which applicant can get during the studying of each module (credit) – 100, the minimum points - 60.

During the assessment of applicant's knowledge the advantage is given to the standardized quality monitoring — oral interview, written interview, test, control of practical skills

| Current control | | | | | | | | | | | | SUM |
|----------------------|-----|------|------|-----|---------|----------------------|-----|-----|------|-----|---------|--------|
| M1. Content module 1 | | | | | | M1. Content module 2 | | | | | | |
| T1 | T2 | T3 | T4 | T5 | Control | T6 | T7 | T8 | T9 | T10 | Control | 60-100 |
| 3-5 | 3-5 | 3-5 | 6-10 | 3-5 | 12-20 | 3-5 | 3-5 | 3-5 | 6-10 | 3-5 | 12-20 | |
| M2. Content module 3 | | | | | | M2. Content module 4 | | | | | | 60-100 |
| T11 | T12 | T13 | T14 | T15 | Control | T16 | T17 | T18 | T19 | T20 | Control | |
| 3-5 | 3-5 | 6-10 | 6-10 | 3-5 | 12-20 | 3-5 | 3-5 | 3-5 | 3-5 | 3-5 | 12-20 | |

The *rating of the current control* is calculated on a cumulative basis. Depending on the curriculum of the current academic year, the number of classes per semester and the marks in a practical classes (seminars) may vary, but the overall ranking is in accordance with the ECTS scale. Study activity in practical class is estimated according criteria in **table 1**.

Table 1. Criteria and evaluation of educational outcomes on practical classes

| Scale | Criteria |
|-----------------------------|--|
| «5» excellent 90-100% | <ul style="list-style-type: none"> • Tasks for self-study for the lesson are done full and correctly • Answers to theoretical questions on the topic of the lesson are given correctly and clearly • Practical tasks during the in-class work were carried out full and correctly |

| | |
|--------------------------------|---|
| | <ul style="list-style-type: none"> • Final test has done in within 90-100%. |
| «4» very good 82-89% | <ul style="list-style-type: none"> • Tasks for self-study for the lesson are done full and correctly • Answers to theoretical questions on the topic of the lesson are given full with negligible error • Practical tasks during the in-class work were carried out with negligible error • Final test has done in within 82-89%. |
| «4-» good 74-81% | <ul style="list-style-type: none"> • Tasks for self-study for the lesson are done with negligible error • Answers to theoretical questions on the topic of the lesson are given incomplete with error • Practical tasks during the in-class work were carried out with negligible deviation • Final test has done in within 74-81%. |
| «3» satisfactory 64-73% | <ul style="list-style-type: none"> • Tasks for self-study for the lesson are done with significant error • Answers to theoretical questions on the topic of the lesson are given incomplete or with significant error • Practical tasks during the in-class work were carried out with significant deviation • Final test has done in within 64-73%. |
| «3-» enough 60-63% | <ul style="list-style-type: none"> • Tasks for self-study for the lesson are done partly with significant error • Answers to theoretical questions on the topic of the lesson are given incomplete with significant error • Practical tasks during the in-class work were carried out partly with significant deviation • Final test has done in within 60-63%. |
| «2» unsatisfactory 0-59% | <ul style="list-style-type: none"> • Tasks for self-study for the lesson aren't done or are done incorrect • Answers to theoretical questions on the topic of the lesson aren't given • Practical tasks during the in-class work weren't carried out are done incorrect • Final test has done in within 0-59% |

Current control includes an assessment of the applicant's theoretical knowledge, practical skills and self-study work, as well as the control of the content module, and is conducted during the in-class work.

In-class work control is carried out in a practical (seminary) class. In accordance with the lesson objectives the in-class-work control can include: oral interview, individual interview, testing, assessment of practical tasks.

Control of self-study work assesses the level of knowledge that applicants acquire during their own self-study, and also by working out a list of questions submitted for self-study work in particular modules. It provides the inclusion of relevant questions to the content module control.

The scale of the content module rating, current rating and the total points are presented in **table 2**.

Table 2. Correspondence scale

| Scale | Credit | Current rating 30 points | Content 20 points | Content module 50 points |
|--------------------------|-----------|-----------------------------|----------------------|-----------------------------|
| «5» excellent 90-100% | credit | 27-30 | 18-20 | 45-50 |
| «4» very good 82-89% | credit | 25-26.5 | 16.5-17.5 | 41-44.5 |
| «4-» good 74-81% | credit | 22.5-24.5 | 15-16 | 37-40.5 |
| «3» satisfactory 64-73% | credit | 19.5-22 | 13-14.5 | 32-36.5 |
| «3-» enough 60-63% | credit | 18-19 | 12-12.5 | 30-31.5 |
| «2» unsatisfactory 0-59% | no credit | 10.5-17.5 | 7-11.5 | 17.5-29.5 |
| | — | 0-10 | 0-6.5 | 0-17 |

Applicants who have completed all types of work provided by the curriculum and who have scored at least 18 points based on the results of current study activities are admitted to the **content module control**.

The content module control is standardized and includes the control of theoretical knowledges and practical training (control of practical skills) in the form of test and situational tasks. The maximum points of the content module control is 20, minimum - 12 points

According to the total result of the current and content module control, a mark is assigned to the credit book according to the systems presented in **table 3**.

Table 3. Rating scale in ECTS (European Credit Transfer System)

| Rating assessment, points | | Definition |
|---------------------------|----|---|
| 90-100 | A | credit |
| 82-89 | B | credit |
| 74-81 | C | |
| 64-73 | D | |
| 60-63 | E | no credit with possibility of repeated pass |
| 35-59 | F | |
| 1-34 | FX | no credit with an obligatory repeated course (additional work is necessary) |

Applicants can get A, B, C, D, E rates if they were granted credits of all modules of educational component.

Applicants can get FX or F if they weren't granted at list one modules of educational component after completing its study.

The FX ("2") is graded to applicants who have received the minimum quantity of points on the current academic activity, but did not pass a content module control. They have the rights to repeat the control test no more than 2 times within 2 weeks after the end of the semester according to the schedule approved by the rector.

Applicants who have got F (they did not complete a program at least one module or did not get the minimum quantity of points for the current academic activity) should repeat course according to an individual curriculum.

Criteria for the exam assessment

| National scale | ECTS | Points | Criteria |
|----------------|--|--------|--|
| 5 | A – excellent | 100-90 | Applicant of master level answers correct and comprehensive to all questions, theoretical knowledge can be freely used to solve practical problems |
| 4 | B – very good | 89-82 | Applicant of master level answers correct to all questions, but not completely, theoretical knowledge can be freely used to solve practical problems |
| 4- | C - good | 81-74 | Applicant of master level answers correct to all questions, but with some errors that he found and corrected himself, theoretical knowledge can be used to solve practical problems |
| 3 | D - satisfactory | 73-64 | Applicant of master level answers correct but not complete on 75% of questions. During the answer, mistakes were made, and an applicant is able to correct after clarifying the examiner's questions. Theoretical knowledge can be used to solve practical problems, but practical tasks are not completed, there are minor errors |
| 3- | E – enough | 63-60 | Applicant of master level answers correct, but not complete, for 50% of questions. During the answer, mistakes were made, and an applicant is able to partially correct after clarifying the examiner's questions. Theoretical knowledge can be used to solve practical problems, but only under the guidance of an examiner |
| 2 | FX – unsatisfactory | 59-35 | Applicant of master level answers correct, but partial, to less than 40% of questions, with errors that can not be corrected after clarifying questions of the examiner. Theoretical knowledge can not be used to solve practical problems, even partially |
| no permission | F – unsatisfactory with an obligatory repeated course (additional work is necessary) | 0-34 | Applicant of master level did not score 36 points for the current educational activity from the module, was not admitted to the final module control or the applicant did not score 24 points from the final module control |

12. Form of progress and semester supervision of academic achievements

Semester credit, semester exam.

13. Methodological Support

- 1) Educational program on an educational component
- 2) Work program on an educational component
- 3) Calendar – thematic plans of lectures and practical classes
- 4) Learning success assessment system
- 5) List of tasks for self-study work
- 6) List of theoretical questions for content module controls
- 7) List of theoretical questions for semester exam
- 8) Set of tests
- 9) Set of cards for content module controls
- 10) Set of cards for exam
- 11) Set of cards for comprehensive test
- 12) Set of examination cards and criteria of knowledge assessment for State Exam
- 13) Methodical recommendations for practical classes
- 14) Methodical recommendations for pharmaceutical manufacturing practice
- 15) Methodical recommendations for Preparation in Comprehensive Practice- oriented Qualification Examination in Pharmacy
- 16) Report of Pharmaceutical Manufacturing Practice
- 17) Textbooks
- 18) Guidelines, atlases, handbooks, manuals
- 19) Educational videos:
 - 1) Multimedia lectures according the schedule

14. Reading suggestions

The main reading suggestions

- 1) Fundamentals of clinical medicine: symptoms and syndromes in the pharmacy practice : manual / I. A. Zupanets, S. B. Popov, Yu. S. Rudyk et al. ; ed. by V. P. Chernykh, V. M. Lesovoy, I. A. Zupanets. – Kharkiv : Golden Pages, 2012. – 94 p.
- 2) Clinical Pharmacy (educational and methodological manual): manual for student of higher schools / I. A. Zupanets, I. S. Chekman, S. B. Popov et al., edited by I. A. Zupanets, I. S. Chekman. – Kharkiv : NUPh : Golden Pages, 2010. – 184 p.
- 3) Clinical Pharmacy: KROK-2 training [Electronic resource] : manual / K. O. Zupanets [et al.], 2021. - 48 c.
- 4) Report on the Work Pharmaceutical Placement in Clinical Pharmacy and Pharmaceutical Care [Electronic resource] : workbook / S. V. Misiurova [et al.], 2023. - 48 c.
- 5) Pharmaceutical care: basic concepts and definitions [Текст] : methodological recommendation for in-class work of students / S. B. Popov [et al.] ; ed. by prof. I. A. Zupanets, 2020. - 24 p.
- 6) Pharmaceutical care when dispensing drugs for the symptomatic treatment of the CNS episodic disorders (anxiety, insomnia) [Текст] : methodological recommendation for in-class work of students / T. S. Sakharova [et al.] ; ed. by prof. I. A. Zupanets, 2020. - 36 p.
- 7) Practical training in clinical pharmacy [Electronic resource] : methodological recommendations / K. O. Zupanets [et al.] ; ed. by prof. I. A. Zupanets, 2020. - 28 p.
- 8) Introduction in Clinical Pharmacy: Basic Definitions and Principles [Текст] : methodological recommendations for in-class work of students / N. P. Bezugla [et al.] ; ed. by I. A. Zupanets ; translated by O. S. Popov, 2018. - 32 p.
- 9) Introduction in Clinical Pharmacy: Adverse Drug Reactions [Текст] : methodological recommendations for in-class work of students / I. A. Otrishko [et al.] ; ed. by I. A. Zupanets ; translated by

O. S. Popov, 2018. - 31 p.

10) Clinical pharmacy in cardiology: chronic heart failure [Текст] : methodological recommendations for in-class work of students / Ye. F. Grintsov [et al.] ; ed. by I. A. Zupanets, 2017. - 31 p.

11) Pharmaceutical care for the symptomatic treatment of headache [Текст] : methodological recommendations for in-class work of students / T. S. Sakharova [et al.] ; ed. by I. A. Zupanets, 2016. - 28 p.

12) Clinical pharmacy in allergology [Текст] : methodological recommendations for in-class work of students / K. M. Tkachenko [et al.] ; ed. by I. A. Zupanets, 2016. - 44 p.

13) Clinical pharmacy in hepatology [Текст] : methodological recommendations for in-class work of students / S. V. Misyurova [et al.] ; ed. by I. A. Zupanets, 2016. - 44 p.

14) Shebeko, S. K. Clinical pharmacy in nephrology [Текст] : methodological recommendations for in-class work of students / S. K. Shebeko, T. S. Zhulay, S. M. Zimin ; ed. by I. A. Zupanets, 2016. - 56 p.

15) Zhulay, T. S. Clinical pharmacy in gastroenterology [Текст] : methodological recommendations for in-class work of students / T. S. Zhulay, S. M. Zimin ; ed. by I. A. Zupanets, 2014. - 64 p.

16) Clinical pharmacy in cardiology. Essential arterial hypertension. Symptomatic arterial hypertension. Antihypertensive drugs [Текст] : methodological recommendations for in-class work of students / Ye. F. Grintsov [et al.] ; ed. by I. A. Zupanets, 2014. - 56 p.

17) Clinical pharmacy [Текст] : methodological recommendations to practice for students / O. V. Gerasymenko [et al.] ; ed. by I. A. Zupanets, 2014. - 19 p.

18) Propisnova, V. V. Clinical pharmacy in pulmonology [Текст] : methodical recommendations for classroom work of students of speciality 7.12020101 "Pharmacy" and 7.12020104 "Technology of perfumery and cosmetics" of pharmaceutical higher schools and pharmaceutical faculties of medical higher schools of the III - IV th accreditation levels / V. V. Propisnova, K. O. Zupanets ; editor I. A. Zupanets, 2013. - 64 p.

Supplementary reading suggestions

1) *Applied Therapeutics : The Clinical Use Of Drugs* / ed. by Caroline S. Zeind, Michael G. Carvalho. – 11th ed. – New York : Wolters Kluwer ; Lippincott Williams & Wilkins, 2018. – 2379 p.

2) *British Medical Association. New Guide to Medicines and Drugs*. – 9th ed. – London : Dorling Kindersley, 2015. – 512 p.

3) *Clinical Pharmacy and Therapeutics*. – 6th ed. / Eds Cate Whittlesea and Karen Hodson. – London : Churchill Livingstone, 2019. – 1094 p.

4) *Harrison's Principles of Internal Medicine* / L. J. Jameson [et al.]. – 20th ed. – McGraw Hill Professional, 2018. – 4048 p.

5) *Oxford Handbook of Clinical Pharmacy Third Edition* / eds Ph. Wiffen. M. Mitchell, M. Snelling, N. Stoner. – Oxford : Oxford University Press, 2017. – 730p.

6) *Symptoms in the Pharmacy : A Guide to the Management of Common Illness*. – 8th ed. / Ed. A. Blenkinsopp, M. Duerden and J. Blenkinsopp. – Oxford : John Wiley & Sons Ltd, 2018. – 405 p.

15. Electronic Resources, including the Internet

1) Drugs.com. Prescription Drug Information, Interactions and Side Effects [Electronic resource]. – Access mode: <https://www.drugs.com/> (Date of access: 12.01.2023). – The name from the screen.

2) FDA Approved drug products [Electronic resource] // Federal Drug Administration. – Access mode: <https://www.accessdata.fda.gov/scripts/cder/daf/> (Date of access: 12.01.2023). – The name from the screen.

3) Medicines [Electronic resource] // European Medicines Agency. – Access mode: <https://www.ema.europa.eu/en/medicines> (Date of access: 12.01.2023). – The name from the screen.

4) *Orange Book: Approved Drug Products with Therapeutic Equivalence Evaluations* [Electronic resource]. – Access mode: <https://www.accessdata.fda.gov/scripts/cder/ob/index.cfm> (Date of access: 12.01.2023). – The name from the screen.

5) *Rxlist*. The Internet Drug Index for prescription drug information, interactions and side effects [Electronic resource]. – Access mode: <https://www.rxlist.com/> (Date of access: 12.01.2023). – The name from the screen..

- 6) <https://pharmel.kharkiv.edu/moodle/course/view.php?id=2693>
- 7) <https://pharmel.kharkiv.edu/moodle/course/view.php?id=2722>
- 8) <https://pharmel.kharkiv.edu/moodle/course/view.php?id=4893>
- 9) <https://pharmel.kharkiv.edu/moodle/course/view.php?id=4894>
- 10) <https://pharmel.kharkiv.edu/moodle/course/view.php?id=24>