

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

Department of Phthisiopulmonology

«APPROVED»



Pro-rector for scientific and pedagogical work

Eduard BURIACHKIVSKYI

September 1, 2023

**WORKING PROGRAM OF ELECTIVE EDUCATIONAL DISCIPLINE
"PREVENTION OF DEVELOPMENT OF SIDE EFFECTS OF ANTI-
TUBERCULOSIS DRUGS"**

Higher education level: second (master's)

Area of expertise: 22 "Health care"

Specialty: 222 "Medicine"

Educational and professional program: Medicine


2023

The work program is compiled on the basis of the educational and professional program "Medicine" for the training of specialists of the second (master's) level of higher education in specialty 222 "Medicine" field of knowledge 22 "Health care" approved by the Scientific Council of ONMedU (Minutes No. 8 of June 29, 2023) .

Developers:

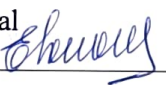
Professor of the department, doctor of medicine, prof. Matsegora N. A.
Department assistant Zaitsev A.S.

The work program was approved at the meeting of the Department of Phthisiopulmonology
Protocol No. 1 dated August 30, 2023

Head of the department  Nina MATSEGORA

Agreed with the guarantor of EPP  Valery MARICHEREDA

Approved by the subject cycle methodical commission for therapeutic disciplines
Minutes No. 1 dated August 31, 2023

The head of the subject cycle methodical
Committee on Therapeutic Disciplines  Olena VOLOSHYNA

Reviewed and approved at the department meeting Department of occupational
diseases and functional diagnostics and phthisiopulmonology

Minutes No. 1 dated "04" 09 2023

Head of Department  Oleksandr Ignatiev
(signature) (First Name SURNAME)

Reviewed and approved at the department meeting _____

Minutes No. ___ dated "___" _____ 20__

Head of Department _____
(signature) (First Name SURNAME)

1. Description of the academic discipline

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline
The total number of: Credits: 3.0 Hours: 90 Content modules: none	Branch of knowledge 22 "Health care"	<i>Full-time education</i>
		<i>Elective discipline</i>
	Specialty 222 "Medicine"	<i>Year of training: 5</i>
		<i>Semesters VII - VIII</i>
	Level of higher education second (master's)	<i>Lectures (0 hours)</i>
		<i>Seminar /Practical (30 hours)</i>
		<i>Laboratory (0 hours)</i>
		<i>Independent work (60 hours)</i>
	<i>including individual tasks (0 hours)</i>	
	<i>Final control form- credit</i>	

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

Goal: mastering a set of knowledge, skills, and rational use of anti-tuberculosis drugs that are safe for human health, which should reduce the frequency or prevent the occurrence of unwanted effects when making a rational choice of drugs.

Task:

- 1) achievement of timely, high-quality, patient-oriented and effective treatment of susceptible and drug-resistant tuberculosis;
- 2) study of conditions and risk factors that contribute to the formation of adverse reactions in the treatment of TB;
- 3) improve knowledge of emergency care for these conditions;
- 4) the ability to apply methods of preventing adverse road traffic reactions;
- 5) familiarization with the latest advances in pharmacotherapy of resistant forms of tuberculosis;
- 6) creation and support of effective systems and mechanisms for providing comprehensive medical care and social support to HIV-infected patients, patients with tuberculosis, as well as patients with other co-infections.

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

General (GC):

- GC1. Ability to abstract thinking, analysis and synthesis
- GC2. Ability to learn and master modern knowledge
- GC3. Ability to apply knowledge in practical
- GC16. The ability to evaluate and ensure the quality of the work performed

Special (SC):

- SC1. Ability to collect medical information about the patient and analyze clinical data
- SC2. Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results

SC6. Ability to determine the principles and nature of treatment and prevention of diseases

Program learning outcomes (PLO):

PLO 1. Have thorough knowledge of the structure of professional activity. To be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, the ability for further professional training with a high level of autonomy.

PLO 2. Understanding and knowledge of fundamental and clinical biomedical sciences, at a level sufficient for solving professional tasks in the field of health care.

PLO 3. Specialized conceptual knowledge, which includes scientific achievements in the field of health care and is the basis for conducting research, critical understanding of problems in the field of medicine and related interdisciplinary problems.

PLO 7. Assign and analyze additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) (according to list 4) of patients with diseases of organs and body systems for differential diagnosis of diseases (according to list 2).

PLO 9. Determine the nature and principles of treatment (conservative, operative) of patients with diseases (according to list 2), taking into account the age of the patient, in the conditions of a health care institution, outside its borders and at the stages of medical evacuation, including in field conditions, on the basis of a preliminary clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes, in case of the need to expand the standard scheme, be able to justify personalized recommendations under the control of the head physician in the conditions of a medical institution.

As a result of studying the academic discipline, the applicant must:

Know:

- International standards for tuberculosis control. Modern approaches to detection, diagnosis, treatment, dispensary supervision and prevention of tuberculosis.
- General principles of tuberculosis treatment. Antimycobacterial drugs. Standard treatment regimens for patients with tuberculosis.
- Standard regimens of chemotherapy. The concept of chemoresistance. Categories of treatment of patients with tuberculosis. criteria for cure and safety of pharmacotherapy.
- Adverse reactions to antimycobacterial drugs. Classification.
- Causes of development and risk factors of adverse reactions to antituberculosis drugs.
- Mechanisms of PR development on road accidents. Skin manifestations, methods of detecting the sensitizing effect of PR on road accidents. Methods of treatment and prevention of PR.
- Drugs with uncertain efficacy. Combined accidents.
- Peculiarities of pharmacotherapy of tuberculosis in HIV-infected patients.

- Side effects arising from the use of drugs affecting the central nervous system, cardiovascular system, blood system, and immunity. Algorithm of actions of doctors in the organization of assistance to patients in cases of PR in the treatment of TB;
- Peculiarities of pharmacotherapy of tuberculosis in pregnant women, in patients with kidney and liver pathology, in HIV-infected patients.
- Control, monitoring and management of adverse reactions to anti-tuberculosis drugs. Preventive measures at the inpatient and outpatient stages of TB treatment.

Be able:

- master the ability to diagnose various clinical forms of tuberculosis;
- improve skills and abilities for diagnosis and differential diagnosis of tuberculosis;
- acquire knowledge on the treatment and prevention of tuberculosis;
- acquire knowledge about possible adverse reactions (ADRs) of anti-tuberculosis antibacterial drugs;
- interpret risk factors and predict the occurrence of treatment complications;
- interpret the results of laboratory and instrumental research;
- to learn the algorithm of actions of doctors in the organization of assistance to patients in cases of PR in the treatment of TB;
- learn the main preventive measures in the occurrence of PR;
- acquire skills and abilities to record the results of treatment and its complications in the relevant medical documentation;
- demonstrate the formation of moral and ethical and deontological qualities during professional communication with the patient, as well as the principles of professional subordination in phthisiology.

3. Content of the academic discipline

Topic 1. Organization of medical care for tuberculosis patients. Detection and diagnosis of tuberculosis. Categories of tuberculosis patients referred for treatment and dispensary supervision. Standardization of clinical care. General principles of treatment of tuberculosis and AMBT: complexity, combination, controllability, duration and continuity, staged sequence, individual approach. Indications for hospitalization of tuberculosis patients.

Topic 2. Standard mode of therapy for patients of 1, 2, 3, 4 categories. Antimycobacterial drugs. Standard treatment regimens for patients with tuberculosis. General principles of antimycobacterial therapy. Antituberculosis drugs (TTP): classification, doses, methods and frequency of introduction into the patient's body. Reversion (to positive results). Conversion (to negative results).

Topic 3. Antituberculosis drugs of the first series. Isoniazid (H); Rifampicin (R); Ethambutol (E); Pyrazinamide (Z). Dosage depending on body weight. Group of drugs/ activity in relation to MBT. Mechanism of action. Interaction with other medicinal products. Contraindication. Adverse reactions. Monitoring of adverse reactions. Prevention of adverse reactions.

Topic 4. Antituberculosis drugs of the 2nd line. Group 2: injectable anti-tuberculosis drugs; Group 3: fluoroquinolones; Group 4: bacteriostatic antituberculosis drugs of the II series; Group 5: drugs with uncertain efficacy(if necessary, they are used in patients with extensively resistant tuberculosis in the absence of other possibilities for forming a scheme of 4 antituberculosis drugs of 1–4 groups).

Topic 5.Classification of adverse reactions (AD): according to the mechanism of development (A, B, C, D.); by degree of difficulty. Clinical manifestations of side effects of antituberculosis drugs on the side of the central nervous system and peripheral nervous system: symptoms, characteristics, assistance.

Headache (H, Cs, Q, Pt), Epileptiform seizures (H, Cs). Depression (H, Cs, Q, Pt, E, Amx/Clv). Psychoses (H, Cs, Q, Pt). Peripheral neuropathy (Cs, H, Et/Pt, S, Km, Am, Cm, Q, E, Lzd).

Topic 6.Clinical manifestations of side effects of anti-tuberculosis drugs: symptoms, characteristics, assistance.

Visual impairment – retrobulbar neuritis (E, H, Pt, Lzd). Vestibulo-ototoxic reactions (S, Am, Km, Cm, Clr). Violation of the electrolyte composition (Cm, Km, Am, S, PAS). Cardiovascular pathology (Cm, Km, Am, S, PAS).

Topic 7. Clinical manifestations of side effects of antituberculosis drugs: symptoms, characteristics, assistance.

Arthropathy (Z, Q). Nephrotoxic reactions (Cm, Am, Km, S). Hypothyroidism (H, Pt, PAS).

Topic 8. Clinical manifestations of side effects of anti-tuberculosis drugs: symptoms, characteristics, assistance.

Drug hepatitis (H, R, Z, Pt, PAS, Q). Gastritis, peptic ulcer disease (PAS, Et/Pt). Pancreatitis (PAS, Et/Pt). Dysbacteriosis (all PTP).

Topic 9.Clinical manifestations of side effects of anti-tuberculosis drugs of allergic and non-allergic origin: symptoms, characteristics, assistance.

Skin reactions of a non-allergic nature (Q, Cfz, Pt). Allergic reactions (all PTP). Other PR.

Topic 10. Antituberculosis drugs for use in special cases.

Pregnancy, breastfeeding. Taking oral contraceptives. Liver damage. Acute hepatitis. Kidney failure. Diabetes. TB/HIV infection. Creation and support of effective systems and mechanisms for providing comprehensive medical care and social support to HIV-infected patients, patients with tuberculosis, as well as patients with other co-infections.

Topic 11. Toxic and toxic-allergic side reactions to anti-tuberculosis drugs.

Toxic and toxic-allergic side reactions to individual accidents. Treatment. Drugs with uncertain effectiveness. Combined accidents.

Topic 12. Basic principles of treatment of patients with multidrug-resistant tuberculosis and tuberculosis with extended resistance and construction of a chemotherapy regimen. Acquaintance with the latest advances in pharmacotherapy of resistant forms of tuberculosis.

Topic 13.Pathogenetic and symptomatic therapy of tuberculosis.

Hygienic and dietary regime. Pathogenetic therapy. Symptomatic therapy. Treatment of extrapulmonary forms of tuberculosis with the help of adjuvant steroids.

Topic 14. Control, monitoring and management of adverse reactions to anti-tuberculosis drugs. Clinical-laboratory and instrumental monitoring of the quality of treatment. Interpretation of the results of tuberculosis treatment and further actions. Treatment is complete. Treatment failure. Died Treatment is interrupted. Dropped out Preventive measures at the inpatient and outpatient stages of TB treatment.

4. The structure of the academic discipline

Topic	Practice	SRZ	In general
Topic 1. Organization of medical care for tuberculosis patients. Detection and diagnosis of tuberculosis. Categories of tuberculosis patients referred for treatment and dispensary supervision. General principles of treatment of tuberculosis and AMBT.	2	4	6
Topic 2. Standard mode of therapy for patients of 1, 2, 3, 4 categories. General principles of antimycobacterial therapy. Antituberculosis drugs (TTP): classification, doses, methods and frequency of introduction into the patient's body. Reversion (to positive results). Conversion (to negative results).	2	4	6
Topic 3. Antituberculosis drugs of the first series. Isoniazid (H); Rifampicin (R); Ethambutol (E); Pyrazinamide (Z). Dosage depending on body weight. Group of drugs/activity in relation to MBT. Mechanism of action. Interaction with other medicinal products. Contraindication. Adverse reactions. Monitoring of adverse reactions. Prevention of adverse reactions.	2	4	6
Topic 4. Antituberculosis drugs of the 2nd line. <ul style="list-style-type: none"> • Group 2: injectable anti-tuberculosis drugs; • Group 3: fluoroquinolones; • Group 4: bacteriostatic antituberculosis drugs of the II series; • Group 5: drugs with uncertain efficacy. 	2	4	6
Topic 5. Classification of adverse reactions (AD): according to the mechanism of development (A, B, C, D.); by degree of difficulty. Clinical manifestations of side effects of antituberculosis drugs on the side of the central nervous system and peripheral nervous system: symptoms, characteristics, assistance. <ul style="list-style-type: none"> • Headache (H, Cs, Q, Pt), • Epileptiform attacks (H, Cs). • Depression (H, Cs, Q, Pt, E, Amx/Clv). • Psychoses (H, Cs, Q, Pt). • Peripheral neuropathy (Cs, H, Et/Pt, S, Km, Am, Cm, Q, E, Lzd). 	2	6	8
Topic 6. Clinical manifestations of side effects of anti-tuberculosis drugs: symptoms, characteristics, assistance. <ul style="list-style-type: none"> • Visual impairment – retrobulbar neuritis (E, H, Pt, Lzd). • Vestibulo-ototoxic reactions (S, Am, Km, Cm, Clr). • Violation of the electrolyte composition (Cm, Km, Am, S, PAS). • Cardiovascular pathology (Cm, Km, Am, S, PAS). 	2	4	6

Topic 7. Clinical manifestations of side effects of antituberculosis drugs: symptoms, characteristics, assistance. <ul style="list-style-type: none"> • Arthropathy (Z, Q). • Nephrotoxic reactions (Cm, Am, Km, S). • Hypothyroidism (H, Pt, PAS). 	2	4	6
Topic 8. Clinical manifestations of side effects of anti-tuberculosis drugs: symptoms, characteristics, assistance. <ul style="list-style-type: none"> • Drug hepatitis (H, R, Z, Pt, PAS, Q). • Gastritis, peptic ulcer disease (PAS, Et/Pt). • Pancreatitis (PAS, Et/Pt). • Dysbacteriosis (all PTP). 	2	4	6
Topic 9. Clinical manifestations of side effects of anti-tuberculosis drugs of allergic and non-allergic origin: symptoms, characteristics, assistance. <ul style="list-style-type: none"> • Skin reactions of a non-allergic nature (Q, Cfz, Pt) • Allergic reactions (all road accidents) • Other PR. 	2	4	6
Topic 10. Antituberculosis drugs for use in special cases: <ul style="list-style-type: none"> • Pregnancy, breastfeeding • Taking oral contraceptives • Liver damage • Acute hepatitis • Kidney failure • Diabetes • TB/HIV infection 	4	4	8
Topic 11. Toxic and toxic-allergic side reactions to anti-tuberculosis drugs. Toxic and toxic-allergic side reactions to individual accidents. Treatment. Drugs with uncertain effectiveness. Combined accidents.	2	4	6
Topic 12. Acquaintance with the latest advances in pharmacotherapy of resistant forms of tuberculosis. Basic principles of treatment of patients with multidrug-resistant tuberculosis and tuberculosis with extended resistance and construction of a chemotherapy regimen.	2	4	6
Topic 13. Pathogenetic and symptomatic therapy of tuberculosis. Hygienic and dietary regimen. Pathogenetic therapy. Symptomatic therapy.	2	4	6
Topic 14. Control, monitoring and management of adverse reactions to anti-tuberculosis drugs. Clinical-laboratory and instrumental monitoring of the quality of treatment. Interpretation of the results of tuberculosis treatment and further actions. Preventive measures at the inpatient and outpatient stages of TB treatment.	2	6	8
Total	30	60	90

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

5.1. Topics of lectures

Lectures are not provided.

5.2. Topics of seminar classes

Seminar classes are not provided.

5.3. Topics of practical classes

No. z/p	Topic	How many hours?
1.	Organization of medical care for tuberculosis patients. Detection and diagnosis of tuberculosis. Categories of tuberculosis patients referred for treatment and dispensary supervision. Standardization of clinical care. General principles of treatment	2
2.	Standard regimen of therapy for patients of 1, 2, 3, 4 categories. General principles of antimycobacterial therapy. Antituberculosis drugs (TTP): classification, doses, methods and frequency of introduction into the patient's body. Reversion (to positive results).	2
3.	First-line antituberculosis drugs. Isoniazid (H); Rifampicin (R); Ethambutol (E); Pyrazinamide (Z). Dosage depending on body weight. Group of drugs/activity in relation to MBT. Mechanism of action. Interaction with other medicinal products. Contraindication. Adverse reactions. Monitoring of adverse reactions. Prevention of adverse reactions.	2
4.	Second-line antituberculosis drugs. <ul style="list-style-type: none"> • Group 2: injectable anti-tuberculosis drugs; • Group 3: fluoroquinolones; • Group 4: bacteriostatic antituberculosis drugs of the II series; • Group 5: drugs with uncertain efficacy 	2
5.	Classification of adverse reactions (AD): according to the mechanism of development (A, B, C, D.); by degree of difficulty. Clinical manifestations of side effects of antituberculosis drugs on the side of the central nervous system and peripheral nervous system: symptoms, characteristics, assistance. <ul style="list-style-type: none"> • Headache (H, Cs, Q, Pt), • Epileptiform attacks (H, Cs). • Depression (H, Cs, Q, Pt, E, Amx/Clv). • Psychoses (H, Cs, Q, Pt). • Peripheral neuropathy (Cs, H, Et/Pt, S, Km, Am, Cm, Q, E, Lzd). 	2
6.	Clinical manifestations of side effects of anti-tuberculosis drugs: symptoms, characteristics, assistance. <ul style="list-style-type: none"> • Visual impairment – retrobulbar neuritis (E, H, Pt, Lzd). • Vestibulo-ototoxic reactions (S, Am, Km, Cm, Clr). • Violation of the electrolyte composition (Cm, Km, Am, S, PAS). • Cardiovascular pathology (Cm, Km, Am, S, PAS). 	2
7.	Clinical manifestations of side effects of anti-tuberculosis drugs: symptoms, characteristics, assistance. <ul style="list-style-type: none"> • Arthropathy (Z, Q). • Nephrotoxic reactions (Cm, Am, Km, S). • Hypothyroidism (H, Pt, PAS). 	2
8.	Clinical manifestations of side effects of anti-tuberculosis drugs: symptoms, characteristics, assistance. <ul style="list-style-type: none"> • Drug hepatitis (H, R, Z, Pt, PAS, Q). • Gastritis, peptic ulcer disease (PAS, Et/Pt). • Pancreatitis (PAS, Et/Pt). 	2

	<ul style="list-style-type: none"> • Dysbacteriosis (all PTP). 	
9.	<p>Clinical manifestations of side effects of anti-tuberculosis drugs of allergic and non-allergic origin: symptoms, characteristics, assistance.</p> <ul style="list-style-type: none"> • Skin reactions of a non-allergic nature (Q, Cfz, Pt). • Allergic reactions (all PTP). • Other PR. 	2
10.	<p>Antituberculosis drugs for use in special cases:</p> <ul style="list-style-type: none"> • Pregnancy, breastfeeding • Taking oral contraceptives • Liver damage • Acute hepatitis • Kidney failure • Diabetes <p>TB/HIV infection</p>	4
11.	Toxic and toxic-allergic side reactions to anti-tuberculosis drugs. Toxic and toxic-allergic side reactions to individual accidents. Treatment. Drugs with uncertain effectiveness. Combined accidents.	2
12.	Acquaintance with the latest advances in pharmacotherapy of resistant forms of tuberculosis. Basic principles of treatment of patients with multidrug-resistant tuberculosis and tuberculosis with extended resistance and construction of a chemotherapy regimen.	2
13.	Pathogenetic and symptomatic therapy of tuberculosis. Hygienic and dietary regime. Pathogenetic therapy. Symptomatic therapy.	2
14.	Control, monitoring and management of adverse reactions to anti-tuberculosis drugs. Clinical-laboratory and instrumental monitoring of the quality of treatment. Interpretation of the results of tuberculosis treatment and further actions. Preventive measures at the inpatient and outpatient stages of TB treatment.	2
	Total	30

5.4. Topic of laboratory classes

Laboratory classes are not provided.

6. Independent work of students of higher education

No. z/p	Topic	How many hours?
1.	Standard regimen of therapy for patients of 1, 2, 3, 4 categories. General principles of antimycobacterial therapy. Antituberculosis drugs (TTP): classification, doses, methods and frequency of introduction into the patient's body. Reversion (to positive results).	4
2.	Risk factors for the occurrence of adverse reactions to road accidents: heredity of adverse reactions as a basis for their objective assessment. Peculiarities in the interaction of different classes of traffic accidents.	4
3.	Adverse reactions when prescribing AMBT. State and ways of overcoming drug resistance of the causative agent of tuberculosis.	4
4.	AMBPs causing damage to the cardiovascular system Prevention of AMBP side effects of AMBPs.	4
5.	Prevention of side effects of AMBP on the central and peripheral nervous	6

	system	
6.	Prevention of side effects of AMBP on the hepatobiliary system	4
7.	Prevention of side effects of AMBP on the urinary system	4
8.	Prevention of side effects of AMBP on gastrointestinal organs	4
9.	Prevention of side effects of AMBP on the endocrine system	4
10.	Prevention of side effects of AMBP on the reproductive system.	4
11.	Prevention of side effects of AMBP on the organs of vision and hearing	4
12.	Prevention of side effects of AMBP on respiratory organs	4
13.	Prevention of side effects of AMBP on the musculoskeletal system	4
14.	Control, monitoring and management of adverse reactions to anti-tuberculosis drugs. Clinical-laboratory and instrumental monitoring of the quality of treatment.	4
15.	Rules and procedure for filling out form No. 137/o. Algorithm for submitting reports on received side effects of PTP. Preparation for the final lesson.	6
	Total	60

7. Teaching methods

Practical training.

Teaching a selective academic discipline in practical classes, it is provided with methodical developments for each class, visual teaching aids for each class (presentations, video lectures), the information resource of the department, structured algorithms of skill control.

Independent work.

Independent work in the study of a selective academic discipline is ensured by methodical developments for independent work, visual teaching aids (video lectures, presentations), information resource of the department, topics of independent work, structured algorithms of skill control.

8. Forms of control and assessment methods (including criteria for evaluating learning outcomes)

Current control: entrance and final knowledge level control tests on the subject of practical training; oral answer to questions based on the material of the current topic; solving typical and atypical clinical situational problems; control of practical skills.

Final control: balance

Evaluation of the current educational activity in a practical session:

1. Evaluation of theoretical knowledge on the subject of the lesson:
methods: survey, solving a situational clinical problem;
2. Evaluation of work with a patient on the subject of the lesson:
methods: evaluation of: a) communication skills of communication with the patient, b) the correctness of prescribing and evaluating laboratory and instrumental studies, c) compliance with the differential diagnosis algorithm, d) justification of the clinical diagnosis, e) drawing up a treatment plan

Current evaluation criteria in practical training

Rating	Evaluation criteria
Perfectly "5"	The applicant must be fluent in the material, take an active part in discussing the topic and solving the situational clinical problem, confidently demonstrate practical skills during the examination of the patient, express his opinion on the subject of the lesson, demonstrate clinical thinking.
Fine "4"	The applicant must have a good command of the material, participate in the discussion of the material and the solution of the situational clinical problem, demonstrate practical skills during the examination of a patient with some errors, express his opinion on the topic of the lesson, demonstrate clinical thinking.
Satisfactory "3"	The applicant must answer questions on the topic, not having sufficient knowledge of the material, not being confident in taking part in the discussion and solving the situational clinical problem, demonstrating practical skills during the examination of a patient with significant errors.
Unsatisfactory "2"	The acquirer does not possess the material, does not take part in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the examination of the patient.

Credit is given to the applicant who has completed all the tasks of the work program of the academic discipline, actively participated in practical classes and has an average current grade of at least 3.0 and has no academic debt.

Test is carried out: at the last lesson before the beginning of the examination session - with the tape system of learning, at the last lesson - with the cyclical system of learning. The credit score is the arithmetic mean of all components on a traditional four-point scale and has a value that is rounded using the statistical method with two decimal places after the decimal point.

9. Distribution of points received by students of higher education

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

Conversion table of a traditional assessment into a multi-point scale

National score for the discipline	The sum of scores for the discipline
Excellent («5»)	185 – 200
Good («4»)	151 – 184
Satisfactory («3»)	120 – 150
Unsatisfactory («2»)	Less than 120

A multi-point scale (200-point scale) characterizes the actual success of each

applicant in learning the educational component. The conversion of the traditional grade (average score for the academic discipline) into a 200-point grade is performed by the information and technical department of the University.

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

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

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

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

ECTS' s mark	Statistical indicator
«A»	the best 10% of students
«B»	the next 25% of students
«C»	the next 30% of students
«D»	the next 25% of students
«E»	the next 10% of students

10. Methodological support

- Working program of the academic discipline
- Syllabus
- Methodical developments for practical classes
- Multimedia presentations
- Situational clinical tasks

11. Questions for preparing for the final inspection

1. List the methods of diagnosing tuberculosis.
2. Name the main principles of antimycobacterial therapy?
3. Classification of antituberculosis drugs.
4. Give a general description of first-line antituberculosis drugs.
5. Give a general description of second-line antituberculosis drugs.
6. Which antituberculosis drugs belong to the group of drugs with uncertain effectiveness?
7. Define the term "adverse reaction" and "adverse effect".
8. How are side effects classified?
9. Describe toxic reactions.
10. What are the methods of prevention of neurotoxic adverse reactions when patients take anti-tuberculosis drugs?

12. Recommended literature

Main:

1. Phthiology: a textbook / V. I. Petrenko, L. D. Todoriko, L. A. Hryshchuk [and others]; under the editorship V. I. Petrenko. Kyiv: Medicine, 2015. 471 p.

2. Prevention of tuberculosis. Study guide for students and interns of VNMZ IV accreditation level and doctors / V. I. Petrenko, M. G. Dolynska, A. V. Aleksandrin, V. V. Petrenko. Kyiv: 2 Print, 2017. 88 p. URL:

3. Management of adverse reactions during the treatment of patients with tuberculosis and co-infection (tuberculosis/HIV infection/AIDS) (methodical guide for doctors) "National Institute of Phthiology and Pulmonology named after F.G. YANOVSKY NAMN of Ukraine". - Kyiv, 2016. - p.80.

4. Order of the Ministry of Health of Ukraine on the approval of the standards of medical care "Tuberculosis" dated January 19, 2023 No. 102

5. Order of the Ministry of Health of Ukraine dated 01.02.2019 No. 287 "Infection control standard for health care facilities that provide assistance to tuberculosis patients."

6. WHO consolidated guidelines for the treatment of drug-resistant tuberculosis, 2018.

7. Order of the Ministry of Health of Ukraine dated June 5, 2019 No. 1292 "On the approval of a new Clinical Protocol on the use of antiretroviral drugs for the treatment and prevention of HIV infection."

8. Extrapulmonary tuberculosis" edited by Professor N. A. Matsegora, November, 2022 - 448 p. (co-authors: Prof. Matsegora N.A., Prof. Marichereda V.G., Prof. Antonenko P.B., Assoc. Shpota O.E., Assoc. Smolska I.M., Assoc. Kaprosh A.V. , Assistant L.P. Omelyan, Assistant A.S. Zaitsev)

Additional:

1. Prevention of tuberculosis. Study guide for students and interns of VNMZ IV accreditation level and doctors / V. I. Petrenko, M. G. Dolynska, A. V. Aleksandrin, V. V. Petrenko. Kyiv: 2 Print, 2017. 88 p. URL:<http://tb.ucdc.gov.ua/uploads/files/prophilaktica.pdf>.

2. Emergencies in the practice of a phthisiopulmonologist: teaching. manual / N. A. Matsegora, O. Ya. Lekan, O. A. Baburina, M. Yu. Golubenko. Odesa: "Astroprint", 2016. 64 p.

13. Electronic information resources

1. Website of the Public Health Center of the Ministry of Health of Ukraine.<http://phc.org.ua/>
2. Tuberculosis issues on the WHO website.<http://www.who.int/tb/en/>
3. National Tuberculosis Resource Center.<http://tb.ucdc.gov.ua/>
4. Stages of HIV-AIDS.www.ifp.kiev.ua › doc › people › vil-pop › vil-pop5
5. TB/HIV site. <https://aph.org.ua/uk/nasha-robota/ukraine/gf/>