

# SYLLABUS

## 1. General information on the course

<b>Full course name</b>	Phtysiatics
<b>Full official name of a higher education institution</b>	Sumy State University
<b>Full name of a structural unit</b>	Medical Institute. Department of Surgery, Traumatology, Orthopedics and Phthisiology
<b>Author(s)</b>	Oleshchenko Halyna Pavlivna, Duzhyi Ihor Dmytrovych
<b>Cycle/higher education level</b>	The Second Level Of Higher Education, National Qualifications Framework Of Ukraine – The 7th Level, QF-LLL – The 7th Level, FQ-EHEA – The Second Cycle
<b>Semester</b>	1 тиждень протягом 9-го семестру
<b>Workload</b>	The volume of the discipline is 1 credits ECTS, 30 hours, of which 22 hours is contact work with the teacher (20 h. practical classes and 2 h. lectures), 8 hours - independent work of student
<b>Language(s)</b>	English

## 2. Place in the study programme

<b>Relation to curriculum</b>	Compulsory course available for study programme "Medicine"
<b>Prerequisites</b>	Phthisiology as a discipline is based on the study of anatomy, physiology, histology, microbiology, virology and immunology, pathophysiology, pathomorphology, radiology, pharmacology, propaedeutics of internal medicine, propaedeutics of pediatrics, hygiene and ecology and integrates with these disciplines
<b>Additional requirements</b>	There are no specific requirements
<b>Restrictions</b>	There are no specific restrictions

## 3. Aims of the course

To form a system of knowledge about the classification of clinical forms of tuberculosis, diagnostic and treatment algorithm of various forms of tuberculosis and their complications, prevention of infection of others and reducing the risk of tuberculosis.

## 4. Contents

Topic 1 Examination of patients with tuberculosis (general approaches). Methods of radiation, endoscopic, laboratory and immunological diagnosis of tuberculosis. Tuberculin diagnosis.

Tuberculosis as a social, medical and scientific problem. The main stages of development of the doctrine of tuberculosis. Risk factors for tuberculosis. Pathomorphosis of tuberculosis. The causative agent of tuberculosis, morphological structure, properties. Tuberculosis infection, ways of penetration and spread of the MBT in the human body. Clinical classification of tuberculosis. Clinical examination of a patient with tuberculosis. Ways and methods of tuberculosis detection. Population groups subject to mandatory annual fluorographic examination. Options for tactical actions for doctors of general medical network in the detection of tuberculosis. Tuberculin diagnosis. Microbiological diagnosis of tuberculosis (microscopic, bacteriological, PCR). Methods of radiological examination of patients with tuberculosis (radiological, ultrasound, CT, MRI). Endoscopic diagnosis (bronchoscopy, thoracoscopy, mediastinoscopy). Biopsy.

Topic 2 Differential diagnosis of focal and infiltrative tuberculosis

Pathogenesis and pathomorphology, detection methods, clinic and course of focal form of tuberculosis. Reasons for the spread of multidrug-resistant pulmonary tuberculosis among the population. Causes of tuberculosis in AIDS patients. Pathogenesis and pathomorphology, methods of detection, clinic and course of infiltrative form of tuberculosis. Clinical and radiological variants of caseous pneumonia, features of their course.

Topic 3 Features of tuberculosis in children and adolescents

Tuberculosis of unknown location. Tuberculosis of intrathoracic lymph nodes. Primary tuberculosis complex.

Topic 4 Differential diagnosis of disseminated tuberculosis

Pathogenesis and pathomorphology of disseminated pulmonary tuberculosis. Pathogenesis and pathomorphology of miliary tuberculosis. Pathogenesis and pathomorphology of tuberculous meningitis.

Topic 5 Differential diagnosis of spherical formations in the lungs

Classification of pulmonary tuberculosis. Features of the clinical course of pulmonary tuberculosis, detection methods. Differential diagnosis of pulmonary tuberculoma with peripheral cancer, echinococcal cyst. Consequences.

Topic 6 Differential diagnosis of fibrocavernous and cirrhotic tuberculosis. Extrapulmonary tuberculosis

Causes of fibrocavernous pulmonary tuberculosis. Pathogenesis, pathomorphology. The main clinical syndromes, radiological signs of fibrocavernous and cirrhotic pulmonary tuberculosis. Clinic of tuberculosis of bones and joints, urogenital system, gastrointestinal tract, peripheral lymph nodes. Diagnosis. Modern treatment schemes from the standpoint of evidence-based medicine. Pathogenesis and pathomorphology.

Topic 7 Differential diagnosis of pleural effusion syndrome

Pathogenesis, pathomorphology and classification of tuberculous pleurisy. The main clinical syndromes of pleurisy. Modern diagnostic methods. Indications for pleural puncture, methods of its implementation.

<p>Topic 8 Complications of secondary forms of tuberculosis</p> <p>Pathogenesis, clinic, diagnosis and principles of treatment of hemoptysis, pulmonary hemorrhage, spontaneous pneumothorax, chronic pulmonary heart disease and amyloidosis from the standpoint of evidence-based medicine. Providing emergency care for pulmonary hemorrhage, spontaneous pneumothorax from the standpoint of evidence-based medicine.</p>
<p>Topic 9 Conservative and surgical treatment of patients with tuberculosis. Nonspecific therapy of patients with tuberculosis. Tuberculosis prevention (infection control, primary, secondary, specific)</p> <p>General principles of treatment from the standpoint of evidence-based medicine. Antimycobacterial drugs. Features of diagnosis and treatment of HIV-infected people from the standpoint of evidence-based medicine. Modern treatment regimens in accordance with the spectrum of resistance of the MBT from the standpoint of evidence-based medicine. Levels of care for TB facilities. Tasks of the anti-tuberculosis dispensary, methods and organization of its work. Participation of health professionals in the detection of tuberculosis. General principles of antimycobacterial therapy from the standpoint of evidence-based medicine. Hygienic and dietary regime in the tuberculosis clinic. Pathogenetic, immunocorrective, symptomatic treatment, physiotherapy from the standpoint of evidence-based medicine. Basic surgical treatments for respiratory tuberculosis from the standpoint of evidence-based medicine. Spa treatment of patients with tuberculosis from the standpoint of evidence-based medicine. Medical and social support of patients with tuberculosis. Treatment monitoring. Determination of components of infectious control over tuberculosis. Work in the center of a tuberculosis infection. Social prevention. Chemoprophylaxis of tuberculosis, indications, methods. Sanitary prevention, its tasks. Sanitary and educational work. BCG and BCG-M vaccine. Complications, contraindications, technique. Vaccination calendar.</p>
<p>Topic 10 Differential credit</p>

## 5. Intended learning outcomes of the course

After successful study of the course, the student will be able to:

LO1	Plan a scheme of examination of a patient with tuberculosis. Identify clinical forms of tuberculosis and formulate a clinical diagnosis according to the classification
LO3	Assign and explain the importance of laboratory, radiological, instrumental, microbiological methods of tuberculin testing
LO6	To determine the treatment regimens of patients with different clinical forms of tuberculosis and to determine the criteria for their treatment
LO12	Diagnose and provide emergency care in emergencies in patients with tuberculosis
LO16	Classify the foci of tuberculosis infection and use in them the principles of infection control measures.

## 6. Role of the course in the achievement of programme learning outcomes

Programme learning outcomes achieved by the course.

For 222 Medicine:

PO1	To detect and identify the leading clinical symptoms and syndromes (according to the List 1); to establish the most probable nosological or syndromic preliminary clinical diagnosis of diseases (according to the List 2) using standard methods, preliminary data of the patient's anamnesis, patient's examination data, and knowledge about a human, his organs and systems.
PO2	To collect information about the patient's general condition; to assess the patient's psychomotor and physical development and the state of organs and systems of the body; to assess information on the diagnosis (according to the List 4) based on laboratory and instrumental findings.
PO3	To order and analyze additional (mandatory and optional) examinations (laboratory, radiological, functional and/or instrumental) (according to the List 4) in order to perform a differential diagnosis of diseases (according to the List 2).
PO4	To establish a final clinical diagnosis at a medical institution under control of a supervising doctor by means of informed decision and logical analysis of the obtained subjective and objective data of clinical and additional examinations, and differential diagnosis, following the relevant ethical and legal norms (according to the List 2).
PO5	To detect the key clinical syndrome or the reason for patient's condition severity (according to the List 3) via informed decision and evaluation of the person's state under any circumstances (at home, in the street, at a healthcare facility), including under emergency and military operation conditions, in the field, with a lack of information and limited time.
PO6	To determine the nature and treatment principles (conservative, operative) in patients with diseases (according to the List 2) at a healthcare facility, at patient's home or during medical evacuation process (including in the field), based on the provisional clinical diagnosis and observing the relevant ethical and legal norms, by making a reasonable decision according to existing algorithms and standard procedures based on the principles of evidence-based medicine; if needed to go beyond the standard scheme, to substantiate the personalized recommendations under control of a supervising doctor at a medical facility.
PO7	To determine an appropriate work and rest mode in the treatment of diseases (according to the List 2) at a healthcare institution, at patient's home and during medical evacuation (including in the field), based on the provisional clinical diagnosis and observing the relevant ethical and legal norms, by making a reasonable decision according to existing algorithms and standard procedures.
PO8	To determine an appropriate diet in the treatment of diseases (according to the List 2) at a healthcare institution, at patient's home and during medical evacuation (including in the field), based on the provisional clinical diagnosis and observing the relevant ethical and legal norms, by making a reasonable decision according to existing algorithms and standard procedures.
PO11	To determine the appropriate approach in emergency medical care case under any circumstances, adhering to the relevant ethical and legal norms, by making an informed decision based on the main clinical syndrome (disease severity) and emergency diagnosis (according to the List 3) using standard schemes under limited time conditions based on the principles of evidence-based medicine.

PO12	To provide emergency medical assistance under any circumstances, adhering to the relevant ethical and legal norms, by making an informed decision based on the main clinical syndrome (disease severity) and emergency diagnosis (according to the List 3) using standard schemes and predetermined approach under limited time conditions based on the principles of evidence-based medicine.
PO14	To perform medical procedures (according to the List 5) at a medical facility, at home or at work on the basis of a provisional clinical diagnosis and/or health parameters through making an informed decision and adhering to the relevant ethical and legal norms.
PO16	To plan and implement a system of sanitary and preventive measures against the occurrence and spread of diseases among the population.
PO18	To search for the necessary information in the professional literature and databases; to analyze, evaluate, and apply this information. To apply modern digital technologies, specialized software, statistical methods of data analysis to solve complex health problems.

## 7. Teaching and learning activities

### 7.1 Types of training

<p><b>Topic 1. Examination of patients with tuberculosis (general approaches). Methods of radiation, endoscopic, laboratory and immunological diagnosis of tuberculosis. Tuberculin diagnosis.</b></p>
<p>lect.1 "Detection and diagnosis of primary and secondary forms of tuberculosis" (full-time course)</p> <p>Tuberculosis as a social, medical and scientific problem. The main stages of development of the doctrine of tuberculosis. Risk factors for tuberculosis. Pathomorphosis of tuberculosis. The causative agent of tuberculosis, morphological structure, properties. Tuberculosis infection, ways of penetration and spread of the MBT in the human body. Clinical classification of tuberculosis. Clinical examination of a patient with tuberculosis. Ways and methods of tuberculosis detection. Population groups subject to mandatory annual fluorographic examination. Options for tactical actions for doctors of general medical network in the detection of tuberculosis. Tuberculin diagnosis. Microbiological diagnosis of tuberculosis (microscopic, bacteriological, PCR). Methods of radiological examination of patients with tuberculosis (radiological, ultrasound, CT, MRI). Endoscopic diagnosis (bronchoscopy, thoracoscopy, mediastinoscopy). Biopsy. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).</p>

pr.tr.1 "Examination of patients with tuberculosis (general approaches). Methods of radiation, endoscopic, laboratory and immunological diagnosis of tuberculosis. Tuberculin diagnosis." (full-time course)

Tuberculosis as a social, medical and scientific problem. The main stages of development of the doctrine of tuberculosis. Risk factors for tuberculosis. Pathomorphosis of tuberculosis. The causative agent of tuberculosis, morphological structure, properties. Tuberculosis infection, ways of penetration and spread of the MBT in the human body. Clinical classification of tuberculosis. Clinical examination of a patient with tuberculosis. Ways and methods of tuberculosis detection. Population groups subject to mandatory annual fluorographic examination. Options for tactical actions for doctors of general medical network in the detection of tuberculosis. Tuberculin diagnosis. Microbiological diagnosis of tuberculosis (microscopic, bacteriological, PCR). Methods of radiological examination of patients with tuberculosis (radiological, ultrasound, CT, MRI). Endoscopic diagnosis (bronchoscopy, thoracoscopy, mediastinoscopy). Biopsy. The study of this topic involves theoretical work in the classroom, solving situational problems, work in the simulation center (work with radiographs), the use of virtual simulation (watching movies on the method of collecting and examining sputum, Mantoux, bronchoscopy) with further discussion. In the absence of quarantine restrictions, work in the departments of the medical institution (according to the agreement on cooperation between the medical institution and the university) in compliance with the

## **Topic 2. Differential diagnosis of focal and infiltrative tuberculosis**

pr.tr.2 "Differential diagnosis of focal and infiltrative tuberculosis" (full-time course)

Pathogenesis and pathomorphology, methods of detection, clinic and course of focal form of tuberculosis. Reasons for the spread of multidrug-resistant pulmonary tuberculosis among the population. Causes of tuberculosis in AIDS patients. Pathogenesis and pathomorphology, detection methods, clinic and course of infiltrative form of tuberculosis. Clinical and radiological variants of caseous pneumonia, features of their course. The study of this topic involves theoretical work in the classroom, solving situational problems, work in the simulation center (work with radiographs). In the absence of quarantine restrictions, work in the departments of the medical institution (according to the agreement on cooperation between the medical institution and the university) in compliance with the requirements of infection control for tuberculosis.

## **Topic 3. Features of tuberculosis in children and adolescents**

pr.tr.3 "Features of tuberculosis in children and adolescents" (full-time course)

Tuberculosis of unknown location. Tuberculosis of intrathoracic lymph nodes. Primary tuberculosis complex. The study of this topic involves theoretical work in the classroom, solving situational problems, work in the simulation center (work with radiographs), the use of virtual simulation (watching movies on the method of Mantoux test) with further discussion. Role games. In the absence of quarantine restrictions, work in the departments of the medical institution (according to the agreement on cooperation between the medical institution and the university) in compliance with the requirements of infection control for tuberculosis.

## **Topic 4. Differential diagnosis of disseminated tuberculosis**

pr.tr.4 "Differential diagnosis of disseminated tuberculosis" (full-time course)

Pathogenesis and pathomorphology of disseminated pulmonary tuberculosis. Pathogenesis and pathomorphology of miliary tuberculosis. Pathogenesis and pathomorphology of tuberculous meningitis. The study of this topic involves theoretical work in the classroom, solving situational problems, work in the simulation center (work with radiographs). In the absence of quarantine restrictions, work in the departments of the medical institution (according to the agreement on cooperation between the medical institution and the university) in compliance with the requirements of infection control for tuberculosis.

#### **Topic 5. Differential diagnosis of spherical formations in the lungs**

pr.tr.5 "Differential diagnosis of spherical formations in the lungs" (full-time course)

Classification of pulmonary tuberculosis. Features of the clinical course of pulmonary tuberculosis, detection methods. Differential diagnosis of pulmonary tuberculoma with peripheral cancer, echinococcal cyst. Consequences. The study of this topic involves theoretical work in the classroom, solving situational problems, work in the simulation center (work with radiographs). In the absence of quarantine restrictions, work in the departments of the medical institution (according to the agreement on cooperation between the medical institution and the university) in compliance with the requirements of infection control for tuberculosis.

#### **Topic 6. Differential diagnosis of fibrocavernous and cirrhotic tuberculosis. Extrapulmonary tuberculosis**

pr.tr.6 "Differential diagnosis of fibrocavernous and cirrhotic tuberculosis. Extrapulmonary tuberculosis" (full-time course)

Causes of fibrocavernous pulmonary tuberculosis. Pathogenesis, pathomorphology. The main clinical syndromes, radiological signs of fibrocavernous and cirrhotic pulmonary tuberculosis. Clinic of tuberculosis of bones and joints, urogenital system, gastrointestinal tract, peripheral lymph nodes. Diagnosis. Modern treatment schemes from the standpoint of evidence-based medicine. Pathogenesis and pathomorphology. The study of this topic involves theoretical work in the classroom, solving situational problems, work in the simulation center (work with radiographs, computed tomograms). In the absence of quarantine restrictions, work in the departments of the medical institution (according to the agreement on cooperation between the medical institution and the university) in compliance with the requirements of infection control for tuberculosis.

#### **Topic 7. Differential diagnosis of pleural effusion syndrome**

pr.tr.7 "Differential diagnosis of pleural effusion syndrome" (full-time course)

Pathogenesis, pathomorphology and classification of tuberculous pleurisy. The main clinical syndromes of pleurisy. Modern diagnostic methods. Indications for pleural puncture, methods of its implementation. The study of this topic involves theoretical work in the classroom, solving situational problems, work in the simulation center (work with radiographs, computed tomograms). In the absence of quarantine restrictions, work in the departments of the medical institution (according to the agreement on cooperation between the medical institution and the university) in compliance with the requirements of infection control for tuberculosis.

#### **Topic 8. Complications of secondary forms of tuberculosis**

pr.tr.8 "Complications of secondary forms of tuberculosis" (full-time course)

Pathogenesis, clinic, diagnosis and principles of treatment from the standpoint of evidence-based medicine of hemoptysis, pulmonary hemorrhage, spontaneous pneumothorax, chronic pulmonary heart disease and amyloidosis. Providing emergency care for pulmonary hemorrhage, spontaneous pneumothorax from the standpoint of evidence-based medicine. The study of this topic involves theoretical work in the classroom, solving situational problems. Role games. In the absence of quarantine restrictions, work in the departments of the medical institution (according to the agreement on cooperation between the medical institution and the university) in compliance with the requirements of infection control for tuberculosis.

**Topic 9. Conservative and surgical treatment of patients with tuberculosis. Nonspecific therapy of patients with tuberculosis. Tuberculosis prevention (infection control, primary, secondary, specific)**

pr.tr.9 "Conservative and surgical treatment of patients with tuberculosis. Nonspecific therapy of patients with tuberculosis. Tuberculosis prevention (infection control, primary, secondary, specific)" (full-time course)

Antimycobacterial drugs. Features of diagnosis and treatment from the standpoint of evidence-based medicine in HIV-infected people. Modern treatment regimens from the standpoint of evidence-based medicine in accordance with the spectrum of resistance of the MBT. General principles of antimycobacterial therapy from the standpoint of evidence-based medicine. Pathogenetic treatment from the standpoint of evidence-based medicine. Immunocorrective, symptomatic and physiotherapy from the standpoint of evidence-based medicine. The main surgical methods of treatment from the standpoint of evidence-based medicine for respiratory tuberculosis. Sanatorium treatment from the standpoint of evidence-based medicine for patients with tuberculosis. Medical and social support of patients with tuberculosis. Monitoring of treatment from the standpoint of evidence-based medicine. Determination of components of infectious control over tuberculosis. Work in the center of a tuberculosis infection. Social, sanitary, chemoprophylaxis. Sanitary and educational work. BCG and BCG-M vaccine. The study of this topic involves theoretical work in the classroom, solving situational problems. Role games. In the absence of quarantine restrictions, work in the departments of the medical institution (according to the agreement on cooperation between the medical institution and the university) in compliance with the requirements of infection control for TB

**Topic 10. Differential credit**

pr.tr.10 "Differential credit" (full-time course)

Written answer to test tasks. Oral and written answer to 5 theoretical questions

## 7.2 Learning activities

LA1	Self-study
LA2	E-learning in systems (MIX SSU, Lectur.ED, Google Meet)
LA3	Practical work with the patient in the specialized departments of the hospital
LA4	Preparing for Step 2
LA5	Preparation for the final control
LA6	Analysis of clinical cases



LA7	Interpretation of laboratory (clinical analysis of blood, urine, biochemical analysis of blood, mycobacteriological examination of sputum, tuberculin testing, etc.) and instrumental (ultrasound, CT, radiography, bronchoscopy, thoracoscopy, etc.) methods of examination
LA8	Preparation for practical classes
LA9	Watching educational films
LA10	Individual research project (student research paper, article, thesis, etc.)
LA11	Work with textbooks and relevant information sources
LA12	Practice of practical skills in the simulation center

## 8. Teaching methods

Course involves learning through:

TM1	Role-playing game
TM2	Case-based learning (CBL). Learning based on the analysis of a clinical case, situation
TM3	Team-based learning (TBL). Командно-орієнтоване навчання
TM4	Educational discussion / debate
TM5	Interactive lectures
TM6	Research-based learning (RBL). Learning through research

The discipline is taught using modern teaching methods (CBL, TBL, RBL), which not only promote the development of professional skills, but also stimulate creative and scientific activity and aimed at training practice-oriented specialists.

The discipline provides students with the following soft skills: GC 1. Ability to abstract thinking, analysis, and synthesis. GC 2. Ability to learn, master modern knowledge, and apply the knowledge in practice. GC 3. Knowledge and understanding of the subject area and professional activity comprehension. GC 4. Ability to adapt and act in a new situation. GC 5. Ability to make reasoned decisions; teamwork ability; interpersonal skills. GC 7. Ability to use information and communication technologies. GC 8. Determination and persistence on the tasks and commitments undertaken.

## 9. Methods and criteria for assessment

### 9.1. Assessment criteria

ECTS	Definition	National scale	Rating scale
	Outstanding performance without errors	5 (Excellent)	$170 \leq RD \leq 200$
	Above the average standard but with minor errors	4 (Good)	$140 \leq RD < 169$
	Fair but with significant shortcomings	3 (Satisfactory)	$120 \leq RD < 139$

	Fail – some more work required before the credit can be awarded	2 (Fail)	$0 \leq RD < 119$
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## 9.2 Formative assessment

FA1	Peer assessment
FA2	Testing
FA3	Defense of an individual research project (speech at a conference, competition of scientific works)
FA4	Teacher's instructions in the process of performing practical tasks
FA5	Interviews and oral comments of the teacher on his results
FA6	Checking and evaluating written assignments
FA7	Solving clinical cases

## 9.3 Summative assessment

SA1	Evaluation of written works, surveys, solving a clinical case
SA2	Differential credit
SA3	Defense of an individual research project (incentive activities, additional points)

Form of assessment:

<b>The semester of teaching</b>		<b>200 scores</b>
SA1. Evaluation of written works, surveys, solving a clinical case		<b>120</b>
		120
SA2. Differential credit		<b>80</b>
	Answer to theoretical questions (5x10)	50
	Testing	30

Form of assessment (special cases):

<b>The semester of teaching</b>		<b>200 scores</b>
SA1. Evaluation of written works, surveys, solving a clinical case		<b>120</b>
	In case of quarantine restrictions, evaluation of written works, surveys, clinical case solving are carried out remotely using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	120
SA2. Differential credit		<b>80</b>
	In case of quarantine restrictions, the differential test is carried out remotely using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	80

The highest number of points based on the results of the current and final tests that a student can receive is 200 points. Assessment of current student performance is carried out at each practical lesson on a four-point scale ("5", "4", "3", "2") and is entered in the journal of academic

performance. Scores set according to the traditional scale are converted into points according to the scale of conversion of traditional scores (average score to the nearest hundredth) into rating points. The maximum number of points that a student can score for current activities - 120. The minimum current number of points that a student must score in the study of all practical classes in the discipline - 72 points, which corresponds to the average score for current performance "3". Students who have completed all types of planned educational work, worked out all missed classes by the deadline are allowed to the final modular control. In case of insufficient number of points for current classes, students have the opportunity to enter the test by preparing for the main questions of the discipline (list of questions on the site or from the teacher) and pass "Admission" to the module by answering 3 random questions from the above list. For the final modular control the student can get a maximum of 40% of the total number of points - 80, of which 20 points for testing 60 points for an oral answer (5 questions in one ticket). Incentive points are added to the assessment of the discipline for implementation of an individual research project (defense of student science work 12 points, speech at the conference 5 points, poster presentation at the conference 4 points, thesis reports 3 points).

## 10. Learning resources

### 10.1 Material and technical support

MTS1	Information and communication systems
MTS2	Library funds, archive of radiographs, spiograms, electrocardiograms, computer tomograms, results of laboratory methods of examination, tuberculin diagnostics, microbiological examination
MTS3	Computers, computer systems and networks
MTS4	Simulation center (rigid bronchoscope and collection of bronchial foreign bodies)
MTS5	Regional Clinical Phthisiopulmonology Medical Center
MTS6	Multimedia, video and sound reproduction, projection equipment (video cameras, laptops)
MTS7	Software (to support distance learning)
MTS8	Medical equipment (spirometer, electrocardiograph, bronchoscope, phonendoscope, etc.)

### 10.2 Information and methodical support

<b>Essential Reading</b>	
1	Phthisiology [Текст] : textbook / V. I. Petrenko, O. K. Asmolov, M. G. Boyko etc. ; Ed. V.I. Petrenko. — second edition. — K. : AUS Medicine Publishing, 2018. — 416 p.
<b>Supplemental Reading</b>	
1	Oleshchenko, G. P. 4914 Test tasks in phthisiology for the licensed integrated exam "Step-2" [Текст] : for 5th and 6th year students in specialty 222 "Medicine" / G. P. Oleshchenko. — Sumy : Sumy State University, 2020. — 36 p.

2	Handbook of Global Tuberculosis Control : Practices and Challenges / edited by Yichen Lu, Lixia Wang, Hongjin Duanmu, Chris Chanyasukit, Amie J. Strong, Hui Zhang. — 1st ed. 2017. — New York, NY : Springer US, 2017. — XXII, 558
3	Handbook of Tuberculosis / edited by Jacques H. Grosset, Richard E. Chaisson. — 1st ed. 2017. — Cham : Springer International Publishing, 2017. — XVII, 221 p. 6 illus., 5 illus. in color.
4	Tuberculosis of the Central Nervous System : Pathogenesis, Imaging, and Management / edited by Mehmet Turgut, Ali Akhaddar, Ahmet T. Turgut, Ravindra K. Garg. — 1st ed. 2017. — Cham : Springer International Publishing, 2017. — X,
5	Igor D. Duzhyi, Halyna P. Oleshchenko, Ivan A. Hnatenko, Stanislav O. Holubnychiy. Particular qualities of the proteolytic system in patients with tuberculosis depending on the sensitivity of the pathogen. Wiadomosci Lekarskie. 2021;74(1):94-97
<b>Web-based and electronic resources</b>	
1	National Resource Center for Tuberculosis <a href="http://tb.ucdc.gov.ua/">http://tb.ucdc.gov.ua/</a>
2	Website of the Center for Public Health of the Ministry of Health of Ukraine <a href="http://phc.org.ua/">http://phc.org.ua/</a>
3	The issue of tuberculosis on the WHO website <a href="http://www.who.int/tb/en/">http://www.who.int/tb/en/</a> ; <a href="http://www.who.int/tb/ru/">http://www.who.int/tb/ru/</a> .
4	Website of the National Institute of Tuberculosis and Pulmonology by F.G. Yanovsky of National Academy of Medical Sciences of Ukraine <a href="http://www.ifp.kiev.ua/index_ukr.htm">http://www.ifp.kiev.ua/index_ukr.htm</a>
5	Department of Surgery, Traumatology, Orthopedics and Phthisiology, SSU <a href="http://gensurgery.med.sumdu.edu.ua">http://gensurgery.med.sumdu.edu.ua</a>