



### COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
<b>Pulmonology, allergology and clinical immunology, thoracic surgery</b>	

Lecturer(s)	Department(s) where the course unit (module) is delivered
<b>Coordinator:</b> prof. dr. (HP) Edvardas Danila <b>Other(s):</b> Teachers of Clinic of Chest diseases, Immunology and Allergology o Clinical medicine institute	Clinic of Chest diseases, Immunology and Allergology

Study cycle	Type of the course unit (module)
Integrated studies (I and II cycle)	Compulsory

Mode of delivery	Period when the course unit (module) is delivered	Language(s) of instruction
Face-to-face lectures and seminars in the auditorium. Practical training at the Vilnius University Hospital Santaros Klinikos (Center of Pulmonology and Allergology, and Department of Thoracic surgery of Center of Heart and Thoracic surgery).	3-year, V and VI semesters	English

Requirements for students	
<b>Prerequisites:</b> A student must have completed the following courses: human anatomy, human histology, physiology, pathological anatomy, human biology and genetics, physiology, microbiology.	<b>Additional requirements (if any):</b> None

Course (module) volume in credits	Total student's workload	Contact hours	Self-study hours
<b>10</b> <b>Part I:</b> V sem. (Pulm. 5), <b>Part II:</b> VI sem. (Pulm. (Tuberculosis) 1, Allerg. clin. immunol. 2, Thor. surg. 2)	<b>270</b> <b>Part I:</b> V sem. 135 <b>Part II:</b> VI sem. 135	<b>132</b> <b>Part I:</b> V sem. (Pulm. 66) <b>Part II:</b> VI sem. 66 (Pulm. (Tuberculosis) 12, Allerg. clin. immunol. 27, Thor. surg. 27)	<b>138</b> <b>Part I:</b> V sem. 69 <b>Part II:</b> VI sem. 69

Purpose of the course unit (module): programme competencies to be developed		
Students shall get an acquaintance with the principles of epidemiology, prophylaxis, diagnostics, treatment, and control of chest, allergic and immune diseases. Students shall familiarize themselves with diagnosis and treatment methods of the most common chest, allergic and immune diseases. It is planned that after completion of the course a student will have sufficient knowledge of the most common diseases and urgent situations of the chest diseases, as well as allergic and immune diseases. It is planned that a student shall be able to diagnose and treat most common chest, allergic and immune diseases, to suspect a rare disease of breathing organ. A student shall be able to provide assistance in cases of urgent situations of respiratory organs and allergic reactions.		
Learning outcomes of the course unit (module)	Teaching and learning methods	Assessment methods
<b>Common competences</b> To act fairly and according to ethical obligations, apply good medical practice principles at work, be emphatic, to think	Face-to-face lectures and seminars. Practical training at the Vilnius University Hospital Santaros Klinikos (Center of Pulmonology and Allergology, and Department of Thoracic surgery	Steady assessment during seminars and practical training.

critically and self-critically, be creative, take the initiative, to communicate with others.	of Center of Heart and Thoracic surgery).	
To make an assessment within the scope of one's competence and, if necessary, ask for help, to act in new situations and adapt to them, to act independently, to solve problems, to make judgements, to work with specialists of other fields, to organize and plan.	Face-to-face lectures and seminars. Practical training at the Vilnius University Hospital Santaros Klinikos (Center of Pulmonology and Allergology, and Department of Thoracic surgery of Center of Heart and Thoracic surgery).	Steady assessment during seminars and practical training.
To communicate with patients, colleagues, and relatives of patients disabled people.	Face-to-face lectures and seminars. Practical training at the Vilnius University Hospital Santaros Klinikos (Center of Pulmonology and Allergology, and Department of Thoracic surgery of Center of Heart and Thoracic surgery).	Steady assessment during seminars and practical training.
Properly and completely keep and store medical documentation, use computers, search for sources of literature, store and update information.	Face-to-face lectures and seminars. Practical training at the Vilnius University Hospital Santaros Klinikos (Center of Pulmonology and Allergology, and Department of Thoracic surgery of Center of Heart and Thoracic surgery).	Steady assessment during seminars and practical training.
<b>Specific competences</b>		
To take a history, carry out physical examination, make clinical judgments and decisions, and provide explanations and advice, reassurance and support to patients, to assess the mental state of patients with suspected or present chest, allergic or immune disorder.	Face-to-face lectures and seminars. Practical training at the Vilnius University Hospital Santaros Klinikos (Center of Pulmonology and Allergology, and Department of Thoracic surgery of Center of Heart and Thoracic surgery).	Steady assessment during seminars and practical training. Final colloquium at the end of V semester. Exam at the end of the course.
To recognize and assess the severity of clinical signs, order required tests and interpret their results, carry out differential diagnostics, prepare the relevant patient with chest, allergic or immune disorders monitoring plan; to administer adequate and appropriate treatment, to combine the relevant medicines and other treatment methods in the clinical context, to assess the appropriateness and potential benefit and harm of medicines and other treatment methods, to alleviate pain and stress situations.	Face-to-face lectures and seminars. Practical training at the Vilnius University Hospital Santaros Klinikos (Center of Pulmonology and Allergology, and Department of Thoracic surgery of Center of Heart and Thoracic surgery).	Steady assessment during seminars and practical training. Final colloquium at the end of V semester. Exam at the end of the course.
To measure lung sounds, to apply oxygen therapy, know the main assessment tests of breathing functions, the chest X-ray, computed tomography scans, immune blood, and allergic tests, bronchoscopic examinations.	Face-to-face lectures and seminars. Practical training at the Vilnius University Hospital Santaros Klinikos (Center of Pulmonology and Allergology, and Department of Thoracic surgery of Center of Heart and Thoracic surgery).	Steady assessment during seminars and practical training. Final colloquium at the end of V semester. Exam at the end of the course.

Content: breakdown of the topics	Contact hours						Self-study work: time and assignments	
	Lectures	Tutorials	Seminars	Exercises	Laboratory work	Internship work	Contact hours	Self-study hours
<b>Part I:</b>								
<b>Pulmonology</b>								
1 Anatomy, histology, physiology, pathophysiology of the respiratory			2				2	2
								To prepare for the workshops about anatomy, histology, physiology,

	system. The diagnostic value of complaints; objective examination of the patients. Radiological methods of lungs examination. Lung function testing.								pathophysiology of the respiratory system; the diagnostic value of complaints; objective examination of patients; radiological methods of lungs examination; lung functions testing.	
2	Acute bronchitis, chronic bronchitis, chronic obstructive lung disease	2		2	4			8	8	To prepare for the workshops about acute bronchitis, chronic bronchitis, chronic obstructive lung disease.
3	Bronchiectasis	1			2			3	3	To prepare for the workshops about bronchiectasis.
4	Bronchial asthma	1			2			3	3	To prepare for the workshops about bronchial asthma.
5	Community acquired and hospital pneumonia	2		2	2			6	6	To prepare for the workshops about community-acquired and hospital pneumonia.
6	Pleurisy	1		2	2			5	5	To prepare for the workshops about pleurisy.
7	Carcinoma of the lung	2		2	2			6	6	To prepare for the workshops about carcinoma of the lung.
8	Interstitial lung diseases (sarcoidosis, idiopathic pulmonary fibrosis, extrinsic allergic alveolitis, eosinophilic pneumonia, organizing pneumonia)	2		2	2			6	6	To prepare for the workshops about sarcoidosis, idiopathic pulmonary fibrosis, extrinsic allergic alveolitis, eosinophilic pneumonia, organizing pneumonia.
9	Pulmonary embolism	1		2	2			5	5	To prepare for the workshops about pulmonary embolism.
10	Sleep apnoea syndrome	1			2			3	3	To prepare for the workshops about sleep apnoea syndrome.
11	Acute respiratory distress syndrome			2				2	2	To prepare for the workshops about acute respiratory distress syndrome.
12	Pulmonary hypertension			2				2	2	To prepare for the workshops about pulmonary hypertension.
13	Pneumoconiosis			2				2	2	To prepare for the workshops about pneumoconiosis.
14	Fungal and parasitic lung diseases			1				1	1	To prepare for the workshops about fungal and parasitic lung diseases.
15	Pulmonary adverse drugs reactions			1				1	1	To prepare for the workshops about pulmonary adverse drugs reactions.
16	Pulmonary damage in systemic collagen vascular diseases, heart, digestive tract, and haematological disorders	1		2				3	3	To prepare for the workshops about pulmonary damage in systemic collagen vascular diseases, heart, digestive tract, and hematological disorders.
17	Differential diagnosis of the cough, differential diagnosis of the bronchial obstruction, hemoptysis	1			2			3	3	To prepare for the workshops about various aspects of cough, bronchial obstruction, hemoptysis.
18	Acute and chronic respiratory failure	1			2			3	3	To prepare for the workshops about acute and chronic respiratory failure.
19	Patient safety			1				1	1	To prepare for the workshops about patient safety.
To prepare to the credit				1				1	4	Self-repeat all topics.
Part I hours		16		26	24			66	69	
Part II:										
Tuberculosis										
19	Epidemiology of tuberculosis, infection source of tuberculosis and pathogenesis			1				1	2	To prepare for the workshops about the epidemiology of tuberculosis, infection source of tuberculosis, and pathogenesis.
20	Diagnosis of tuberculosis	1		1	1			3	3	To prepare for the workshops about

									clinical, radiological, and laboratorial methods of diagnosis of tuberculosis
21 Treatment of tuberculosis	1		2				3	3	To prepare for the workshops about the treatment of drug-sensitive and resistant tuberculosis.
22 Nontuberculous mycobacterial lung disease	2		2	1			5	4	To prepare for the workshops about nontuberculous mycobacterial lung disease.
<b>Tuberculosis part hours</b>	4		6	2			12	12	
<b>Allergology and Clinical Immunology</b>									
23. Main concepts of allergology and immunology, mechanisms of the development of allergic and immune diseases and diagnostic methods	1		2	1			4	4	To prepare for the workshops about the main concepts of allergology and immunology, allergic and immune reactions types and mechanisms
24. Allergic respiratory and ocular diseases			2	2			4	4	To prepare for the workshops about allergic respiratory and ocular diseases
25. Urticaria and angioedema	2			1			3	3	To prepare for the workshops about urticaria and angioedema
26 Allergic dermatitis: atopic and allergic contact dermatitis	1		1	2			4	4	To prepare for the workshops about allergic skin diseases
27. Food allergy	1		1	1			3	3	To prepare for the workshops about food allergy, elimination diets and provocation tests
28. Drug hypersensitivity	1		1	2			4	4	To prepare for the workshops about drug hypersensitivity, diagnostic methods.
29. Anaphylaxis	1		1				2	2	To prepare for the workshops about anaphylaxis etiology, diagnostics, treatment, and prevention.
30 Immunodeficiencies: classification, diagnostics and treatment	1		2				3	3	To prepare for the workshops about immunodeficiency’s diagnostics and treatment opportunities
<b>Allergology and Clinical Immunology part hours</b>	8		10	9			27	27	
<b>Thoracic surgery</b>									
31. Introduction to thoracic surgery. The history of general thoracic surgery in the world and Lithuania. Mentors and fathers of bronchology and thoracic surgery. Main diagnostic tools in general thoracic surgery: rigid and flexible bronchoscopy, video assisted mediastinoscopy (VAM), video assisted thoracic surgery (VATS), esophagoscopy.	2			2			4	2	To get acquainted with the history of thoracic surgery. To understand the main diagnostic methods and indications used in thoracic surgery.
32. Chest trauma. Penetrating injuries and blunt trauma. Types of pneumothoraxes. Thoracocentesis and pleural drainage. Hemothorax. Heart injury. Subcutaneous and mediastinal emphysema. Flail chest. Methods of evaluation and management.			2	2			4	3	To prepare for the workshops about chest trauma.
33. Nonspecific acute pulmonary destructions (lung abscess, necrotizing pneumonia and gangrene). Pleural empyema and pyopneumothorax. Empyema necessitatis. Single step and multiple step surgical management. Open window thoracostomy. Surgical management of bronchiectasis.			2	2			4	3	To prepare for the workshops about pulmonary suppurations.

34. Tumors of respiratory system and pleura. Benign and malignant entities. Lung cancer. Diagnostics (minimally invasive and surgical diagnostic methods). Radical and palliative surgical management.			2	2			4	3	To prepare for the workshops about diagnostics and treatment of the patients with lung and pleura malignancies.
35. Esophageal narrowing and obstruction of different origin. Diagnostics and management. Esophageal motility disorders (diverticula, achalasia) and benign tumors. Esophageal cancer: diagnostics, radical and palliative management. Esophageal perforation: etiology, diagnostics and management. Spontaneous esophageal rupture (Boerhaave syndrome).	2		2	2			6	2	To prepare for the workshops about dysphagia of different origin.
36. Postintubation pathology of the airways. Postintubation tracheal stenosis: etiology, diagnostics and emergency management. Radical and palliative surgical management. Tracheostomy: indications and complications. Tracheoesophageal and tracheoarterial fistula. Tracheal stenting with "T" tube and other stents. Management of a patient with a "T" tube.			2	2			4	2	To prepare for the workshops about postintubation pathology of the airways.
Preparation to the exam.			1				1	15	Self-repeat all topics.
<b>Thoracic surgery part hours</b>	4		11	12			27	30	
<b>Part II hours</b>	17		28	22			66	69	
<b>Total course hours</b>	33		56	46			132	138	

Assessment strategy	Weight, %	Deadline	Assessment criteria
Final colloquium	100	At the end of the practical training for every group during V semester.	Oral survey of students' knowledge. It is graded as: credit or no credit.
Exam	100	At the end of the VI semester.	Written exam – the test, held electronically. Composition of the test: 30 questions and clinical cases: 15 from pulmonology, 6 from allergology and clinical immunology, 6 from thoracic surgery and 3 from tuberculosis. The questions will appear consistently, with no possibility of coming back. One question has 5 options. One of them is correct. Duration of the exam – 45 minutes. Final mark: 10: 28–30 correct answers. 9: 25–27 correct answers. 8: 22–24 correct answers. 7: 19–21 correct answers. 6: 16–18 correct answers. 5: 13–15 correct answers. 4: 10–12 correct answers. 3: 7–9 correct answers. 2: 4–6 correct answers. 1: 0–3 correct answers.

Author	Year of	Title	Publishing place and house or web link
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	public ation		
<b>Pulmonology, tuberculosis</b>			
Broadbuss VC, Ernst JD, King TE, Lazarus SC et al.	2022	Murray and Nadel's textbook of respiratory medicine, 7th ed.	<a href="https://www.clinicalkey.com#!/browse/book/3-s2.0-C20181002991">https://www.clinicalkey.com#!/browse/book/3-s2.0-C20181002991</a>
Landsberg JW.	2018	Clinical practice manual for pulmonary and critical care medicine	<a href="https://www.clinicalkey.com#!/browse/book/3-s2.0-C2015000209X">https://www.clinicalkey.com#!/browse/book/3-s2.0-C2015000209X</a>
Weinberger SE, Cockrill BA, Mandel J.	2024	Principles of pulmonary medicine, 8th ed.	<a href="https://www.clinicalkey.com#!/browse/book/3-s2.0-C20210011354">https://www.clinicalkey.com#!/browse/book/3-s2.0-C20210011354</a>
Collard HR, Richeldi L.	2018	Interstitial lung disease.	<a href="https://www.clinicalkey.com#!/browse/book/3-s2.0-C20160007453">https://www.clinicalkey.com#!/browse/book/3-s2.0-C20160007453</a>
Kaminsky DA.	2011	The Netter collection of medical illustrations. Respiratory system, 2th ed.	<a href="https://www.clinicalkey.com#!/browse/book/3-s2.0-C2009035864X">https://www.clinicalkey.com#!/browse/book/3-s2.0-C2009035864X</a>
Cloutier M.	2019	Respiratory physiology, 2th ed.	<a href="https://www.clinicalkey.com#!/browse/book/3-s2.0-C20160042882">https://www.clinicalkey.com#!/browse/book/3-s2.0-C20160042882</a>
<b>Allergology and Clinical Immunology</b>			
Burks AW.	2020	Middleton's Allergy: principles and practice, 9th ed.	<a href="https://www.clinicalkey.com#!/browse/book/3-s2.0-C20161002419">https://www.clinicalkey.com#!/browse/book/3-s2.0-C20161002419</a>
O'Hehir RE, Holgate S, Sheikh A, Hershey GKK.	2022	Allergy essentials, 2nd ed.	<a href="https://www.clinicalkey.com#!/browse/book/3-s2.0-C20180056066">https://www.clinicalkey.com#!/browse/book/3-s2.0-C20180056066</a>
Rich RR.	2022	Clinical immunology, 6th ed.	<a href="https://www.clinicalkey.com#!/browse/book/3-s2.0-C20190005456">https://www.clinicalkey.com#!/browse/book/3-s2.0-C20190005456</a>
<b>Thoracic surgery</b>			
David J. Sugarbaker et al.	2022	Adult Chest Surgery. 2nd ed.	McGraw Hill / Medical
Joseph LoCicero III et al.	2018	Shields' General Thoracic Surgery. 8 <sup>th</sup> ed.	Wolters Kluwer
Scarci M. et al.	2016	Core Topics in Thoracic Surgery	Cambridge University Press
Kuzdzal J. et al.	2014	ESTS Textbook of Thoracic Surgery	Medycyna Praktyczna
Mark K. Ferguson	2020	Difficult Decisions in Thoracic Surgery. 4 <sup>th</sup> ed.	Springer
Rubikas R.	2015	Essentials of Thoracic Surgery (textbook)	LSMU leidybos namai
David J. Sugarbaker et al.	2022	Adult Chest Surgery. 2nd ed.	McGraw Hill / Medical
Joseph LoCicero III et al.	2018	Shields' General Thoracic Surgery. 8 <sup>th</sup> ed.	Wolters Kluwer