DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES AT VILNIUS UNIVERSITY

Scientific Area/eas, Field/ds of Science	Medical and Health Sciences (M 000): Medicine (M 001)			
Faculty, Institute, Department/Clinic	Faculty of Medicine Institute of Clinical Medicine Clinic of Chest Diseases, Immunology, and Allergology			
Course unit title (ECTS credits, hours)	**Thoracic Surgery** 9 credits (240 hours)			
Study method	**Lectures**	**Seminars**	**Consultations**	**Self-study**
Number of ECTS credits	-	-	1	8
Method of the assessment (in 10 point system)	Exam. The exam is taken in written and oral manner. There are three questions and one clinical situation presented.			

PURPOSE OF THE COURSE UNIT

The aim of the course is to introduce doctoral students with the main nosological units and patients' groups of thoracic surgery.
The classical methods of chest pathology examination and surgical treatment are emphasized during these studies. The close connections between the thoracic surgery and the pulmonology, radiology and reanimatology are specified. The surgical treatment schemes and algorithms are analysed for each individual patient group.

THE MAIN TOPICS OF COURSE UNIT

Global and Lithuanian history of thoracic surgery. Anatomy, topography of respiratory organs, physiology of respiratory system, the testing of pulmonary function. The pre-operative evaluation of the patient before thoracic surgery. Radiological examinations (X-ray, ultrasound, CT, MRI, positron emission tomography). Bronchoscopy with a flexible and rigid bronchoscope. Indications for bronchoscopy (diagnostic, therapeutic). Aesthesia. Complications. Fluorescent bronchoscopy, endobronchial ultrasound examination. Chest surgical incisions, thoracoscopy, mediastinoscopy.
Congenital lung pathology. Congenital lobe emphysema. Bronchogenic lung cysts. Intralobaric and extralobaric sequestration of lung tissue. Clinic, diagnostics, surgical treatment. The role of angiography in diagnostics. Postoperative complications and their treatment. Congenital pathology in the of blood vessels in the lungs and bronchial tree (hypoplasia, aplasia).
Pneumothorax. Classification. First aid. Spontaneous pneumothorax (primary, secondary). Etiology, surgical treatment. Thoracocentesis. Complications. Thoracostomy (drainage of the pleural cavity) according to the Bulau methodology. Complications. Subcutaneous and mediastinal emphysema. Etiology. Treatment. Bronchiectasis. Etiology, pathogenesis and clinic. Radiological and endoscopic diagnosis of bronchiectasis. Methods of surgical treatment. Complications after bronchial surgery. Early and late postoperative period.
Chest injuries. Classification. Closed chest injuries. Fractures of ribs and sternum. Treatment, complications. Pathological mobility of the thoracic wall due to multiple fractures of the ribs. Methods of surgical treatment. Lung contusion, rupture. Contusion, rupture of the heart, large blood vessels. Open chest injuries. Hemothorax, hemopneumothorax. Injury of the heart and large blood vessels. Cardiac tamponade. Diagnosis and treatment. Tracheobronchial trauma. Symptomatology. Diagnosis and principles of surgical treatment. Posttraumatic

airway stricture. Foreign bodies of the respiratory tract and esophagus. Symptomatology, diagnosis and treatment. Complications.
Non - specific abscesses of the lungs and pleura. Lung abscess and gangrene. Classification. Clinic, diagnosis and treatment. Pleural empyema. Piopneumothorax. Clinic, diagnostics, surgical treatment (radical and palliative operations). Bronchopleural junction. Temporary bronchial obturation. Empyema necessitatis. Phlegmon of the thoracic wall. Etiology. Surgical treatment. Surgical treatment of pulmonary tuberculosis. Place of surgery in the treatment of patients with COPD (surgery to reduce lung volume). Lung transplantation and its prospects. Bullous emphysema. Bleeding from the lungs. Etiology. Classification. Differential diagnostics. Surgical, endoscopic and angiological treatment.
Malignant neoplasms of the lungs. TNM classification. Disease stages and prognosis. Principles of treatment of patients with non-small cell lung cancer. The role of chemotherapy and radiotherapy in the treatment of patients with lung cancer. Surgical treatment of patients with lung cancer. Assessment of lymph node proliferation, significance, and prognosis of healing. Principles of complex treatment. Antineoplastic vaccines. Palliative care. Reconstructive trachea and bronchial surgery. Small cell lung cancer. Pleural tumors (pleural mesothelioma). Non - malignant and relative non - malignant tumors of the lung, bronchus and trachea. Diagnosis and principles of surgical treatment.
Esophageal diverticula (Zenker, middle third of esophagus and epiphernic diverticula). Clinic, diagnosis, treatment. Oesophageal motility disorders (esophageal achalasia). Symptomatology. Diagnostics. Conservative and surgical treatment. Reflux esophagitis. The stricture of the lower third of the esophagus. Barrett's disease. Clinic, diagnosis and treatment. Esophageal tumors: non-malignant (leiomyoma). Esophageal cancer (TNM classification). Clinic and diagnostics. Preoperative and postoperative (chemotherapy and radiotherapy) treatment. Surgery for esophageal cancer. Postoperative complications. Significance of tumor spread for late postoperative outcomes. Endoscopic procedures in inoperable esophageal cancer. Chemical burns of the esophagus. Diagnostics. Treatment. Esophageal stretching and stenting. Reconstructive esophageal surgery. Complications of endoscopic and surgical treatment. Esophageal injuries. Complications, diagnosis, treatment. Spontaneous esophageal rupture after vomiting (Boerhaave syndrome). Mediastinitis, etiology, principles of surgical treatment.
Diaphragmatic diseases. Relaxation, hernias, traumatic injuries. Clinic, diagnosis and treatment. Interstitial tumors and cysts. Differential diagnosis of mediastinal formations. Complex treatment of patients with lymphoma. Pointubation structure of the trachea. Etiology, diagnosis, treatment. Circulatory tracheal resection procedure. Endoscopic treatment. Tracheoesophageal fistula (TEF) and trachea-arterial junction.

RECOMMENDED LITERATURE SOURCES

1. ESTS textbook of thoracic surgery. Volume 1, [Pleura, trachea, lung] / European Society of Thoracic Surgery (ETST); editor: Jarosław Kużdżał; associate editors: Hisao Asamura et al. 2014.
2. ESTS textbook of thoracic surgery. Volume 2, [Pleura, trachea, lung] / European Society of Thoracic Surgery (ETST); editor: Jarosław Kużdżał; associate editors: Hisao Asamura et al. 2014.
3. Thoracic Surgery. Cervical, Thoracic and Abdominal Approaches; Springer; Claudiu E. Nistor, Steven Tsui, Kaan Kırali, Adrian Ciuche, Giuseppe Aresu, Gregor J. Kocher. 2020.
4. Difficult Decisions in Thoracic Surgery. Springer; Mark K. Ferguson, 2014.
5. Shields' General Thoracic Surgery. Joseph LoCicero III et al, Walters Kluwer, 8th edition, 2018.

6. Thoracic and Esophageal Surgery. Griffith Pearson et al; Churchill Livingstone, 3nd edition; 2008.
7. Surgery of the trachea and bronchi. Hermes C. Grilio, BC Decker, 2004.
8. Thoracic Surgical Techniques. Francis C. Wells, Aman S. Coonar; Springer; 2018.
9. https://www.ctsnet.org

CONSULTING LECTURERS

1. Coordinating lecturer: Ričardas Janilionis (Assoc. Prof. Habil. Dr.).
2. Žymantas Jagelavičius (Assist. Prof. Dr.).

APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University: 29th of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė