

**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)	Minimally Invasive Thoracic Surgery 8 credits (212 hours)			
Study method	Lectures	Seminars	Consultations	Self-study
Number of ECTS credits	-	-	1	7
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				
<p>The aim of the course is to introduce doctoral students with the main nosological units and patient's groups of thoracic surgery.</p> <p>The minimally invasive approaches and their application in the diagnosis and treatment of thoracic diseases are emphasized during these studies. The thoracic surgery possibilities of thoracoscopy, mediastinoscopy, laparoscopy, robotic surgery are analysed.</p>				
THE MAIN TOPICS OF COURSE UNIT				
<p>Global and Lithuanian history of thoracic surgery. The development of minimally invasive thoracic surgery in the course if history. The advantages and disadvantages of minimally invasive thoracic surgery compared to open. Anatomy, topography of thoracic organs, the physiology of respiratory system, the testing of pulmonary function. The pre-operative evaluation of the patient before thoracic surgery. The anaesthesia features in minimally invasive thoracic surgery. Thoracoscopic (video-assisted thoracoscopic) surgery: principles, indications, absolute and relative contraindications. An equipment, a layout, a technique and instruments of the thoracoscopic surgery. The one-sided and the two-sided thoracoscopy. The thoracoscopic approach to pleural diseases. The surgeries for diagnostic and therapeutic means. The thoracoscopic approach to spontaneous pneumothorax. The indications, principles, complications and results of minimally invasive wedge resection, parietal pleurectomy and pleural abrasion techniques. The thoracoscopy approach to various origin fluid in the pleural cavity; the indications for different approaches. The biopsy of the suspected primary or metastatic pleural tumor in the presence of other pleural pathologies. The mechanical and chemical pleurodesis (talc): the indications and complications. The empyemectomy and lung decortication possibilities: the indications, contraindications and complications. The thoracoscopic approach to the thoracic trauma: the indications, contraindications, diagnostic and therapeutic procedures. The hemothorax, its removal, cleansing of the pleural cavity and bleeding control. The blood clots removal during the late phase hemothorax and lung decoration. The thoracoscopic evaluation of the traumatized lung, its suturing and wedge resection. The drainage of the pleural cavity "ad oculos". The thoracoscopic evaluation of the diaphragm wounds and their suturing. The thoracoscopic correction for the diaphragm relaxation. The thoracoscopic approach to the chylothorax. The thoracic duct injury diagnostics and the thoracoscopic treatment (ligation, pleurodesis). The thoracoscopy in the mediastinal pathology (indications, contraindications, complications): anterior, middle, posterior</p>				

mediastinum. The unknown origin mediastinal mass biopsy. The mediastinal lymph node biopsy for the bronchogenic carcinoma staging. The mediastinal lymph nodes removal. The mediastinal cysts and tumors thoracoscopic removal. The thoracoscopic approach to the thyroid pathology (thoracoscopic thymectomy). The thoracoscopic approach to the pulmonary emphysema. The thoracoscopic lung volume reduction surgery. The thoracoscopic approach to the bullous lesions of the lung (bulectomy). Lung tissue biopsy (marginal resection) for the interstitial diseases diagnostics. The solitary lung structures removal.

The anatomical (lobectomy, segmentectomy) and non-anatomical thoracoscopic lung resections. The thoracoscopic approach to the lung cancer: assessment of the tumor spread, staging, biopsy. The radical lung resections: lobectomy, segmentectomy. The multiple or single - port thoracoscopic surgery. The thoracoscopic surgery for esophageal diseases treatment: the indications and complications. The non-malignant esophageal tumors removal. The thoracoscopic esophageal cancer spread assessment. The thoracoscopic stage of esophageal resection. The thoracoscopic dissection and removal of the esophagus. The thoracoscopic esophageal diverticula treatment. The thoracoscopic approach to the achalasia (myotomy). The thoracoscopic gastroesophageal reflux disease treatment. The thoracoscopic approach to the autonomic system diseases (sympathectomy, vagotomy, splanchnisectomy): the indications and complications. The thoracoscopic thoracic outlet syndrome treatment. The thoracoscopic approach to the pericardial diseases (pericardectomy, pericardial fenestration). The thoracoscopic approach to the congenital chest wall deformity: as the part of the Nuss operation for a concave chest. The mediastinoscopy (video-assisted mediastinoscopy): the indications (for diagnostic and therapeutic procedures), contraindications and the advantages and disadvantages compared to the open surgery. An operating equipment, a layout, a technique and instruments for the mediastinoscopy. The principles of complications of the mediastinoscopic surgery. The types of the mediastinoscopy: cervical, anterior. The mediastinoscopic lung cancer spread assessment (local spread in the peritoneum, metastasis to the mediastinal lymph nodes) and stage determination (mediastinal lymph node biopsy and removal). The significance of the mediastinoscopy in the lung cancer diagnosis and complex treatment. The lymph node biopsy for the mediastinal lymphadenopathy. Mediastinal mass biopsy (lymphomas and other interstitial tumors). The cervical (extended cervical) mediastinoscopy. The mediastinal lymph node areas. The anterior mediastinoscopy: indications, technique, complications. The accessibility of the areas of the mediastinal lymph node. The laparoscopic surgery. The laparoscopic approach to the esophageal achalasia (Heller myotomy and fundoplication): indications, complications, results. The laparoscopic approach to gastroesophageal reflux disease (antireflux surgery, Nissen fundoplication): indications, results. The laparoscopic paraesophageal hernia treatment. The laparoscopic mobilization of the esophagus during esophagectomy or esophageal resection. The laparoscopic esophageal cancer spread assessment. The minimally invasive robotic surgery (Da Vinci Robotic Surgical System): possibilities of use, advantages, disadvantages.

RECOMMENDED LITERATURE SOURCES

1. ESTS textbook of thoracic surgery. Volume 1, [Pleura, trachea, lung] / European Society of Thoracic Surgery (ETST); editor: Jarosław Kuźdżał; 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 Kuźdżał; associate editors: Hisao Asamura et al. 2014.
3. Atlas of Uniportal Video Assisted Thoracic Surgery. Diego Gonzalez-Rivas, Edited by Calvin Sze Hang Ng, Gaetano Rocco, Thomas A. D'Amico 2019.

4. Thoracic Surgery. Cervical, Thoracic and Abdominal Approaches; Springer; Claudiu E. Nistor, Steven Tsui, Kaan Kirali, Adrian Ciuche, Giuseppe Aresu, Gregor J. Kocher. 2020.
5. Difficult Decisions in Thoracic Surgery. Springer; Mark K. Ferguson, 2014
6. Shields' General Thoracic Surgery. Joseph LoCicero III et al, Walters Kluwer, 8th edition, 2018
7. Thoracic and Esophageal Surgery. Griffith Pearson et al, Churchill Livingstone, 3rd edition, 2008.
8. Surgery of the trachea and bronchi. Hermes C.Grilio, BC Decker, 2004.
9. Thoracic Surgical Techniques. Francis C. Wells Aman S. Coonar. Springer. 2018.
10. <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