COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
Cardiovascular diseases (2023-2024)	

Lecturer(s)	Department(s) where the course unit (module) is delivered
Coordinator: prof. dr. S. Glaveckaitė **Other(s):** prof. (HP) dr. Germanas Marinskis prof. Jelena Čelutkienė prof. (HP) dr.Žaneta Petrulionienė assoc. prof. Jolita Badarienė assist. prof. Rasa Kūgienė assist. prof. Arvydas Baranauskas assist. prof. Egidija Rinkūnienė assist. prof. Diana Sudavičiene assist. prof. Greta Burneikaitė assist. prof. Agnė Drąsutienė assoc. Prof. Gediminas Račkauskas teaching assist. Rokas Šerpytis assist. prof. Rokas Navickas lector Vytautas Abraitis assoc. Prof. Andrius Berūkštis assist. prof. Vytė Valerija Maneikienė assist. prof. Virginija Rudienė lector Kamilė Čerlinskaitė prof. (HP) dr. Kęstutis Ručinskas, prof. Gintaras Kalinauskas, assist. prof. Aleksejus Zorinas, assoc. Prof. Vilius Janušauskas, assist. prof. Birutė Vaišnytė assist. prof. Gintaris Lionginas Vilkevičius, assist. prof. Nerijus Misonis, assist. prof. Raimundas Vaitkevičius, assist. prof. Arminas Skrebūnas, lector Gediminas Vaitėnas	Vilnius University, Faculty of Medicine, Institute of Clinical Medicine, Clinic of Cardiovascular Diseases: Centre of Cardiology and Angiology, Centre of Urgent Therapy, Centre of Cardiac surgery, Centre of Vascular, Reconstructive and Endovascular Surgery Address: Vilnius university hospital Santaros klinikos, Santariskiu str.2, Vilnius

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

Mode of delivery	Period when the course unit (module) is delivered	Language(s)
Face-to-face and distance learning	Year of study 4 (VIII semester)	English

Requirements for students	
Prerequisites: Successful completion of the following modules is obligative: human anatomy, human physiology, pathology, pharmacology, propaedeutic of internal diseases and basics of nursing, anaesthesiology and resuscitation, general surgery, abdominal surgery, thoracic surgery, traumatology, endocrinology, neurology, radiology.	**Additional requirements (if any):** no

Course (module) volume	Total student's workload	Contact hours	Self-study hours

in credits			
10	268 hours	134	134

Purpose of the course unit (module): programme competences to be developed

Objective: to know aetiology, pathophysiology, clinical features, risk stratification, physical examination, complications, principals of diagnosis and principles of management (pharmacological, invasive, and surgical) of cardiovascular diseases.
Learning outcome: upon completion of the course student must be liable to diagnose the disease, to assess the risk of progression, to sum up the clinical condition of the patient, to interpret results of the various tests, to interpret the electrocardiographic findings, know principals of the management, to assess the preoperative state of a patient, to select the optimal surgical treatment method and to assess the risks of surgery.

Learning outcomes of the course unit (module)	Teaching and learning methods	Assessment methods
Generic competences **Passing out the module student must be liable:**		
To act fairly and according to the ethical obligations, to apply good medical practice principles at work, be emphatic, to think critically and self-critically, be creative, take the initiative, to communicate with others.	Seminars, dealings with clinical situations, practical training in the departments of cardiology, cardiac surgery, vascular surgery, intensive cardiology and intensive care units, various diagnostic units, operating rooms.	Assessment of practical training in the departments of cardiology, cardiac surgery, vascular surgery, intensive cardiology and intensive care units, various diagnostic units, operating rooms.
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.	Seminars, dealings with clinical situations, practical training in the departments of cardiology, cardiac surgery, vascular surgery, intensive cardiology and intensive care units, various diagnostic units, operating rooms.	Assessment of practical training in the departments of cardiology, cardiac surgery, vascular surgery, intensive cardiology and intensive care units, various diagnostic units, operating rooms.
Subject-specific competences **Passing out the module student must be liable:**		
To examine the patient with cardiovascular disease: to take a history, carry out physical examination, make clinical judgements and decisions, provide explanations and advice, reassurance and support to patients.	Seminars, lectures, dealings with clinical situations, practical training in the departments of cardiology, cardiac surgery, vascular surgery, intensive cardiology and intensive care units, various diagnostic units, operating rooms.	Permanent assessment of practical training, solutions of clinical situations. Frequent oral and written quizzes. Assessment of physical examination skills. At the end of the module – examination.
To recognise and assess the severity of clinical signs of cardiovascular disease, order required tests and interpret their results, carry out differential diagnostics, prepare the relevant patient monitoring plan.	Seminars, lectures, dealings with clinical situations, practical training in the departments of cardiology, cardiac surgery, vascular surgery, intensive cardiology and intensive care units, various diagnostic units, operating rooms.	Permanent assessment of practical training, solutions of clinical situations. Frequent oral and written quizzes. Assessment of physical examination skills. At the end of the module – examination.
To recognize and assess critical cardiovascular disease conditions, to treat critical health conditions, to provide first aid, to resuscitate and support main life functions according to current European standards.	Practical training in intensive cardiology and intensive care units, operating rooms. Dealings with clinical situations in seminars. Lectures.	Permanent assessment of practical training, solutions of clinical situations. Assessment of practical resuscitation skills. At the end of module – examination.
To administer adequate and appropriate treatment of cardiovascular disease, 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 be able to choose the right myocardial protection method during various heart surgeries.	Seminars, lectures, dealings with clinical situations, practical training in the departments of cardiology, cardiac surgery, vascular surgery, intensive cardiology and intensive care units, various diagnostic units, operating rooms.	Permanent assessment of practical training, solutions of clinical situations. Frequent oral and written quizzes. At the end of module – examination.

To measure arterial blood pressure, to apply oxygen therapy, transport and take care of patients, to record an ECG, know the main assessment tests of breathing functions. To determine the location of arteries lesions by specific non-invasive tests, to mark anatomical diagrams, to assess the degree of ischemia.	Practical training in the departments of cardiology, cardiac surgery, vascular surgery, intensive cardiology and intensive care units, various diagnostic units, operating rooms.	Permanent assessment of practical training, solutions of clinical situations. Frequent oral and written quizzes. At the end of module – examination.
To communicate with patients, colleagues, relatives of patients, disabled people.	Practical training in the departments of cardiology, cardiac surgery, vascular surgery, intensive cardiology and intensive care units, various diagnostic units, operating rooms.	Permanent assessment of practical training.
Properly and completely keep and store medical documentation, use computers, search for sources of literature, store and update information.	Seminars, self-study.	Permanent assessment of practical training, solutions of clinical situations. Frequent oral and written quizzes.
Advocacy of healthy lifestyles, to provide care to the patient which reduces the risk of cardiovascular disease, use protective measures preventing the spread of risk factors of cardiovascular disease.	Practical training in the departments of cardiology, cardiac surgery, vascular surgery, intensive cardiology and intensive care units, seminars.	Permanent assessment of practical training, solutions of clinical situations. Frequent oral and written quizzes.

Content: breakdown of the topics	**Contact hours**							**Self-study work: time and assignments**	
	Lectures	**Tutorials**	**Seminars**	**Exercises**	**Laboratory work**	**Internship/work placement**	**Contact hours**	**Self-study hours**	**Assignments**
CARDIOLOGY									
Basics of electrocardiography				4			**4**	**4**	To prepare for classes: reading of the corresponding chapter/topic in the material provided
Cardiovascular disease prevention, risk assessment and management, atherosclerosis, dyslipidaemia, metabolic syndrome	1			4			**5**	**5**	To prepare for classes: reading of the corresponding chapter/topic in the material provided
Chronic coronary artery disease. Stable angina pectoris.	2			4			**6**	**6**	To prepare for classes: reading of the corresponding chapter/topic in the material provided

Acute coronary syndromes with and without ST segment elevation, complications of myocardial infarction.	2		1	9			**12**	**12**	To prepare for classes: reading of the corresponding chapter/topic in the material provided
Arterial hypertension. Hypertensive crises. Secondary hypertension.	1			4			**5**	**5**	To prepare for classes: reading of the corresponding chapter/topic in the material provided
Acute heart failure	1			2			**3**	**3**	To prepare for classes: reading of the corresponding chapter/topic in the material provided
Chronic heart failure	1			3			**4**	**4**	To prepare for classes: reading of the corresponding chapter/topic in the material provided
Acquired valvular heart disease. Infective endocarditis.	2			10			**12**	**12**	To prepare for classes: reading of the corresponding chapter/topic in the material provided
Cardiomyopathies	1			4			**5**	**5**	To prepare for classes: reading of the corresponding chapter/topic in the material provided (dilated, hypertrophic, restrictive and non-classified cardiomyopathies)
Myocarditis, pericardial diseases.	1			4			**5**	**5**	To prepare for classes: reading of the corresponding chapter/topic in the material provided (classification, aetiology, blood tests and diagnostic modalities, treatment principles)
Diseases of the aorta.			1	2			**3**	**3**	Reading of the corresponding chapter/topic in the material provided

Tachyarrhythmia's: supraventricular and ventricular paroxysmal tachycardia's, ventricular fibrillation and flutter	1			5			**6**	**6**	To prepare for classes: reading of the corresponding chapter/topic in the material provided (wide QRS complex tachycardia's, narrow QRS complex tachycardia's, ventricular fibrillation/flutter)
Atrial fibrillation/flutter	2			5			**7**	**7**	To prepare for classes: reading of the corresponding chapter/topic in the material provided
Bradyarrhythmia's. Sudden death.	1			5			**6**	**6**	To prepare for classes: reading of the corresponding chapter/topic in the material provided (heart blocks, invasive and non-invasive diagnosis)
Acute pulmonary embolism. Pulmonary hypertension			1	2			**3**	**3**	To prepare for classes: reading of the corresponding chapter/topic in the material provided
CARDIAC SURGERY									
Surgical treatment of acquired heart diseases (pathology of the heart valves, heart tumours and pericardial diseases). Aortic syndromes.	2			4			**6**	**6**	To prepare for classes: reading of the corresponding literature. To acquire knowledge and understanding of the treatment strategy in classification of heart valve pathology, heart tumours and pericardial diseases.
Surgical treatment of coronary heart disease	2			4			**6**	**6**	To prepare for classes: reading of the corresponding literature. To acquire knowledge and understanding of the treatment ischaemic heart disease and its complications
Congenital heart diseases. Surgical treatment of congenital heart defects in adults.	2			4			**6**	**6**	To prepare for classes: reading of the corresponding literature. To acquire knowledge in

									classification of congenital heart diseases and treatment strategy.
Heart failure, heart transplantation and artificial hearts	2			4			**6**	**6**	To prepare for classes: reading of the corresponding literature. To acquire knowledge and understanding of the treatment strategy in classification of heart failure and application of mechanical circulatory support.
VASCULAR SURGERY									
Chronic peripheral artery disease. Chronic limb ischemia	2			4			**6**	**6**	To prepare for classes: reading of the corresponding chapter/topic in the material provided.
Visceral artery occlusive disease.	2			4			**6**	**6**	To prepare for classes: reading of the corresponding chapter/topic in the material provided.
Acute peripheral artery disease. .	2			4			**6**	**6**	To prepare for classes: reading of the corresponding chapter/topic in the material provided (acute limb circulatory failure, limb ischemia categories, and indications for surgery, thrombolysis and conservative treatment).
Chronic and acute venous diseases	2			4			**6**	**6**	To prepare for classes: to read on required publications for particular topic (the causes of deep vein thrombosis, the diagnostic principles of DVT, venous trophic ulcers, indications for conservative and surgical treatment).
Total	**32**		**3**	**99**			**134**	**134**	

Assessment strategy	Weight, %	Deadline	Assessment criteria

Practical work in the departments of cardiology, cardiac surgery, vascular surgery, intensive cardiology and intensive care units, various diagnostic units, operating rooms. Work during seminars in classroom		During VIII semester	The student must be liable to: -to examine the patient with cardiovascular disease: to take a history, carry out physical examination, to interpret results of laboratory and other diagnostic tests, to measure arterial blood pressure, to apply oxygen therapy, to record an ECG, know the main assessment tests of breathing functions. To determine the location of arteries lesions by specific non-invasive tests, to mark anatomical diagrams, to assess the degree of ischemia. -to administer appropriate treatment strategy of cardiovascular disease -to know the relevant medical and other treatment methods, to assess the appropriateness and potential benefit and harm of medicines and other treatment methods -to recognise and assess critical cardiovascular disease conditions, to provide first aid, to resuscitate and support main life functions.
Quiz orally/written	40%	During VIII semester	Solutions of clinical situations. The completeness of the answer, the logic and correctness of the information provided, the knowledge of ECG are evaluated. Evaluation in a 10 points system
Examination (test)	60%	After VIII semester (during session)	Examination consist from 3 parts: 3 written tests (multi-answer questionnaires in cardiology, cardiac surgery and vascular surgery). Assessment is made by deducing arithmetical mean all four parts of examination. Cardiology questionnaire consists of 30 questions, cardiac and vascular surgery of 10 questions each. Estimated as follows: **10 -** Excellent knowledge and skills (≥90 points). **9** - Very good knowledge and skills (80-89 points). **8 -** Good knowledge and skills may be minor errors (70-79 points). **7 -** Average knowledge and skills, there is an error (60-69 points). **6 -** Knowledge and skills is below average, the (material) errors (50-59 points). **5 -** Knowledge and skills to satisfy the minimum requirements. Many mistakes (40-49 points). **4-0 -** Dissatisfied with the minimum requirements for (<40 points). Final mark will be corrected considering work of student during seminars and quiz results.

Author	**Year of publication**	**Year of publication**	**Issue of a periodical or volume of a publication**	**Publishing place and house or web link**
Compulsory reading				
Thomas Lüscher (ed.)	**2021**	**Manual of Cardiovascular Medicine**	**1st edition**	**Oxford University Press**
Leonard S. Lilly (editor)	2016	Pathophysiology of heart diseases (cardiology)	6th edition	Wolters Kluwer
Antoni Bayés de Luna	2014	ECGs for Beginners (cardiology)	1st edition	John Wiley & Sons, Inc

All lectors	Updated each year	Lectures and seminar material can be found in the Vilnius university virtual learning platform (course title: **Cardiology, Cardiac and Vascular Surgery**)	Updated each year	https://vma.esec.vu.lt/
Demosthenes G. Katritsis, Bernard J. Gersh, A. John Camm	2016	Clinical cardiology: current practise guidelines	Updated Edition	Oxford University Press
Douglas L. Mann, Douglas P. Zipes, Peter Libby, Robert O. Bonow, Eugene Braunwald (editors)	2015	Braunwald's heart diseases: a textbook of cardiovascular medicine	10th edition	Saunders
Kouchoukos NT, Blackstone EH, Hanley FL, Kirklin JK. Kirklin/Barratt-Boyes.	2012	Cardiac Surgery. Elsevier Health	E-Book	Elsevier Health Sciences
Feldman A.	2009	Heart failure: device management.		John Wiley & Sons
Jeremias A, Brown DL. Online and Print	2010	Cardiac Intensive Care E-Book: Expert Consult:		Elsevier Health Sciences
Gatzoulis MA, Webb GD, Daubeney PE.	2010	Diagnosis and Management of Adult Congenital Heart Disease	E-Book: Expert Consult–Online and Print	Elsevier Health Sciences;
J.W. Kirklin, B.G. Barratt-Boyes	2003	Cardiac Surgery. V.1,2. 3rd. edition		Churchill Livingstone
Electronic books:		http://mmcts.oxfordjournals.org/cgi/collection#cardiac		
Optional reading				
R.Mattassi, D.A.Loose, M.Vaghi (Eds).	2009	Haemangiomas and vascular malformations (An Atlas of diagnosis and treatment)		Springer-Verlag Italia
Liapis C.D.; Balzer, K.; Benedetti-Valentini F.; Fernandes e Fernandes J. (Eds.)	2007	Vascular Surgery Series: European Manual of Medicine		Berlin: Springer
Ramelet A.A., Perrin M., K ern P.	2008	Bounameaux H. Phlebology. 5th ed.		Paris, Elsevier Masson
P. Gloviczki (editor).	2009	Handbook of venous disorders		London: Edward Arnold
R. B. Rutherford	2010	Vascular Surgery, 7th edition		Philadelphia: Elsevier Saunders
George Geroulakos and Bauer Sumpio	2011	Vascular Surgery Cases Questions and Commentaries		Springer-Verlag London