

(Vilniaus universiteto studijų dalyko (modulio) aprašo tipinė forma anglų kalba)



COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
Musculoskeletal Physiotherapy	

Academic staff	Core academic unit(s)
Coordinating: lect. A. Cirtautas Other:	Vilnius University Faculty of Medicine Institute of Health Science Department of Rehabilitation, Physical and Sports Medicine M. K. Čiurlionio g. 21 LT - 03101 Vilnius

Study cycle	Type of the course unit
I	Compulsory

Mode of delivery	Semester or period when it is delivered	Language of instruction
classroom	IV semester	Lithuanian

Requisites	
Prerequisites: Functional Anatomy II/II, Kinesiology, Fundamentals of Rehabilitation, Fundamentals of Psychology, Foreign Language, Human Physiology and Biochemistry II/ II, Movement Biomechanics Assessment in Physiotherapy, Methods and Tools of Physiotherapy II/II, Exercise Physiology and Motor Control, Education, Communication and Ethics, First Aid and Basics of Nursing.	Co-requisites (if relevant): Non

Number of ECTS credits allocated	Student's workload (total)	Contact hours	Individual work
10	270	130	140

Purpose of the course unit		
The student will be able to analyze injured structures and impaired functions of the human body, determine and formulate a Physiotherapy diagnosis and goal, create an individual Physiotherapy program, select and apply technical aids and orthopedic technical devices for individuals after musculoskeletal injuries and for their prevention, and apply the acquired knowledge in practice.		
Learning outcomes of the course unit	Teaching and learning methods	Assessment methods
Will be able to analyze the structures and functions of the human body, pathological processes of human movement in individuals after bone and muscular system injuries.	Lectures and seminars remotely (teaching material, problem-based learning, discussions, slide and video demonstration). Exercises in the Physiotherapy room: (case analysis, group presentation, discussions in small groups, bibliographic research).	During the semester, assessment of theoretical material, seminars and workshops - a clinical case.
Will be able to determine and formulate a Physiotherapy diagnosis and the goal of	Lectures and seminars remotely (teaching material, problem-based	During the semester, assessment of theoretical material, seminars and

Physiotherapy for individuals with musculoskeletal injuries.	learning, discussions, slide and video demonstration). Exercises in the Physiotherapy room: (case analysis, group presentation, discussions in small groups, bibliographic research).	workshops - a clinical case.
Will be able to create an individual Physiotherapy program and/or apply it and/or assess its effectiveness and/or train individuals after musculoskeletal injuries.	Lectures and seminars remotely (teaching material, problem-based learning, discussions, slide and video demonstration). Exercises in the Physiotherapy room: (case analysis, group presentation, discussions in small groups, bibliographic research).	During the semester, assessment of theoretical material, seminars and workshops - a clinical case.
Will be able to properly select and apply technical aids and orthopedic technical means for each individual in the presence of various functional disorders and their prevention.	During lectures: providing information, problem-based teaching. During exercises, demonstration of tools, discussions, practical tasks and their discussions. Preparation and delivery of a presentation.	During the semester, assessment of theoretical material, seminars and workshops - a clinical case.
Will be able to consult and train individuals and their relatives to use technical aids and orthopedic technical means.	During lectures: providing information, problem-based teaching. During exercises, demonstration of tools, discussions, practical tasks and their discussions.	Test.
Will be able to solve problems and make decisions; communicate and work in a team; organize and plan.	During lectures: providing information, problem-based teaching. During exercises, demonstration of tools, discussions, practical tasks and their discussions.	Test.

Content	Contact hours							Individual work: time and assignments	
	Lectures	Tutorials	Seminars	Workshops	Laboratory work	Internship	Contact hours, total	Individual work	Tasks for individual work
Classification of bone fractures, treatment methods. Principles of physiotherapy for bone fractures.	8		5	6			19	11	Prepare for a seminar and workshops on PT features in bone fractures.
Methods of treatment of compression fractures of the spine. Principles of physiotherapy for compression fractures of the spine.	3		3	6			12	11	Prepare for a seminar and workshops on PT features in compression fractures of the vertebrae.
Soft tissue injuries, first aid. Principles of physiotherapy for soft tissue injuries.	3		4	6			13	11	Prepare for a seminar and workshops on PT features in soft tissue injuries.
Limb amputations. Principles of physiotherapy after limb amputation.	2		2	6			10	11	Prepare for a seminar and workshops on PT features after limb amputation.
Frostbite. Principles of physiotherapy for frostbite.	1		1	2			4	12	Prepare for a seminar and workshops on PT features in frostbite.

Burns, their degrees. Principles of physiotherapy for burns.	1		1	2			4	12	Prepare for a seminar and workshops on PT features in burns.
Joint replacement, their types. Principles of physiotherapy after joint replacement.	6		2	6			14	11	Prepare for a seminar and workshops on PT features after joint replacement.
Technical aids for the disabled. Universal environment. Principles of ergonomics.									
1. Technical assistance devices (TAD) - concepts, terms and classification. The procedure and organization of provision of compensatory equipment and orthopedic devices for the disabled in Lithuania.	1	-	-	-	-	-	1	2	Familiarization with the documents of the Republic of Lithuania regulating the appointment and procedure of TPP.
2. Equipment compensating for movement functions: 2.1. Walking TAD: purpose, types, individual adaptation of devices. Features of using walking devices.	1	-	-	2	-	-	3	3	Prepare for workshops on walking technical aids.
2.2. Wheelchairs: purpose, types and correspondence to the need. Wheelchair accessories (cushions, backrests, etc.);	2	-	-	2	-	-	4	4	Prepare for workshops on wheelchairs for the disabled, their adaptation features according to individual needs. Modeling of clinical situations in the presence of different pathologies (child/adult and stroke, tetra/paraplegia, CP) by selecting and adapting a wheelchair or other means of movement.
2.3. Individual selection of a wheelchair, measurement of the main parameters, and adaptation according to the level of disability. Individual adjustment possibilities and control features of wheelchairs: active and universal types and electric wheelchairs.	2	-	-	2	-	-	4	6	
2.4. Other means of transport for the disabled (baby strollers, mobility boards, scooters and manually operated cars). Assessment of the adaptation and driving capabilities of a manually operated car.	-	-	-	2	-	-	2	2	
3. Service TPP: eating, personal hygiene, bathing: purpose, types (toilet chairs with or without wheels, toilet heighteners, bathroom benches, ladders, bathroom steps). Nursing TPP: purpose, types (mattresses and seats for preventing bedsores, functional beds, nursing devices). Lifts for the disabled (types, specifications and requirements for use).	2	-	2	2	-	-	6	4	Prepare for workshops on TPP used to ensure independence and in nursing and analyze the features of using lifts, taking into account their type and requirements.
4. Selection of TPP and individual adaptation for persons with visual impairments.	2	-	1	2	-	-	5	2	Prepare for workshops on TPP in the presence of visual, hearing and speech impairments and cognitive functions.
5. Selection of TPP and individual adaptation for persons with hearing impairments.	2	-	1	-	-	-	3	3	
6. Compensatory technology for persons with cognitive impairments. Alternative communication tools.	-	-	-	4	-	-	4	4	
7. Prosthetic and orthopedic products. Prostheses, their types, types of prosthetics and diversity. Features of individual selection of prostheses and principles of individual adaptation of prostheses.	2	-	1	-	-	-	3	2	Prepare for a seminar on the options for selecting and applying orthopedic devices;

8. Orthoses, their types, main requirements. Classification of orthoses according to the materials used, their advantages and disadvantages.	2	-	-	-	-	-	3	4	Principles of selecting and applying an individual prosthesis.
9. Orthopedic footwear and shoe inserts. Their features, selection and use to increase patients' independence. Compression therapy (elastic bandages, compression stockings, devices) is used for the prevention and treatment of deep vein thrombosis of the legs.		-	1	-	-	-		2	
10. Universal environment. Universal design and public environment and its adaptation. Peculiarities of public transport adaptation.	-	-	-	2	-	-	2	2	Prepare for a discussion and exercises on adapting the public environment for people with disabilities.
11. The concept of "Environment for all". Legislation regulating the adaptation of the environment for the disabled. Organisation of environmental adaptation control.	-	-	1	2	-	-	3	3	
12. Adaptation of living space for a disabled person. Adaptation of sanitary facilities. Adaptation of a bath and shower. Peculiarities of environmental adaptation in the presence of different disabilities.	-	-	1	2	-	-	3	3	
13. Ergonomics concepts. 10 Principles of Physical Ergonomics. 10 Principles of Cognitive Ergonomics.	-	-	-	2	-	-	2	3	Prepare for exercises on the application of ergonomic principles, occupational risks and ergonomic risk factors in the clinical work environment.
14. Ergonomics of movement and posture. Anthropometric data and ergonomic environment.	-	-	-	2	-	-	2	4	
15. Work. Principles of occupational safety. Workplace ergonomics. Occupational risks and ergonomic risk factors at work.	-	-	-	2	-	-	2	4	
16. Stages and principles of workplace assessment, modeling and development taking into account ergonomic and occupational risk factors.	-	-	-	2	-	-	2	4	
Total	40		26	64			130	140	

Assessment strategy	Weight %	Deadline	Assessment criteria
Theory	20%	During the semester.	Two tests – written, demonstration of general understanding of theoretical material (k=0.2). (1) Test questions will be prepared from theoretical material of lectures on technical assistance measures for the disabled. The test consists of 20 closed-ended questions. Each question has only one correct answer. (2) Test will be prepared from theoretical material of traumatology. The test consists of closed-ended questions. Each question has only one correct answer. Assessment is based on a 10-point system: 10 points – excellent knowledge and ability (95-100% of questions answered correctly); 9 points – very good knowledge and ability (85-94% of questions answered correctly); 8 points – good knowledge and ability (75-84% of questions answered correctly);

			7 points – average knowledge and ability (65-74% of questions answered correctly); 6 points – satisfactory knowledge and ability (55-64% of questions answered correctly); 5 points – weak knowledge and ability (45-54% of questions answered correctly); 4 points – very weak (unsatisfactory) knowledge and ability (35-44% of questions answered correctly); 3 points – unsatisfactory knowledge and ability (25-34% of questions answered correctly); 2 points – unsatisfactory knowledge and ability (15-24% of questions answered correctly); 1 point – unsatisfactory knowledge and ability (1-14% of questions answered correctly). 0 points – there is no correct answer or testing is terminated due to student indiscipline. A positive assessment must be received during the tests (in the event of a negative assessment, the tests are not counted and the final exam assessment is not performed).
Seminars	10%	During the semester.	Test (on musculoskeletal system disorders and PT) – written, demonstration of general understanding of the seminar material ($k=0.1$). The test consists of closed-ended questions. Each question has only one correct answer. It is assessed on a 10-point scale: 10 points – excellent knowledge and ability (95-100% of questions answered correctly); 9 points – very good knowledge and ability (85-94% of questions answered correctly); 8 points – good knowledge and ability (75-84% of questions answered correctly); 7 points – average knowledge and ability (65-74% of questions answered correctly); 6 points – satisfactory knowledge and ability (55-64% of questions answered correctly); 5 points – weak knowledge and ability (45-54% of questions answered correctly); 4 points – very weak (unsatisfactory) knowledge and ability (35-44% of questions answered correctly); 3 points – unsatisfactory knowledge and ability (25-34% of questions answered correctly); 2 points – unsatisfactory knowledge and ability (15-24% of questions answered correctly); 1 point – unsatisfactory knowledge and ability (1-14% of questions answered correctly). 0 points – there is no correct answer or testing is terminated due to student misconduct. A positive assessment must be received during the test (in case of a negative assessment, the test is not counted and the final exam assessment is not performed).
Workshops (from Technical Measures seminars/workshops)	20%	During the semester.	The form of assessment is a case study consisting of an assessment of practical knowledge ($k=0.2$). The assessment (score) of the case presentation is calculated by adding up the scores of all assessment areas (maximum score – 10). The following areas are assessed: 1. Assessment of the patient's functional status and mobility (maximum score – 2): • Based on the presented case, the student is excellently able to assess the patient's functional status and mobility, clearly and accurately identifies the patient's main movement restrictions – 2 points; • Is able to assess, but not very accurately indicates the patient's main mobility disorders, or omits some important aspects – 1 point;

			• Cannot adequately assess the patient's condition and mobility – 0 points. 2. Determination of a physiotherapy diagnosis (maximum score – 1): • Having assessed the patient's history and examination data, the student is excellently able to formulate a physiotherapy diagnosis – 1 point; • Does not formulate or incorrectly formulates a physiotherapy diagnosis – 0 points. 3. Selection and justification of compensatory measures (maximum number of points – 3): • Excellent ability to select appropriate compensatory measures, justifies them and knows the principles of their application – 3 points; • Able to select compensatory measures, but provides only partial justification – 2 points; • Inaccurately or unreasonably selects compensatory measures – 1 point; • Cannot select appropriate compensatory measures – 0 points. 4. Answers to additional questions (maximum number of points – 4). Additional open-ended questions will be provided about compensatory techniques, their selection and/or about universal design and environmental adaptation. A positive assessment must be received during the clinical case report (in case of a negative assessment, the clinical case is not included and the final exam assessment is not performed).
Task completion and presentation (from Technical Measures seminars/workshops)	10%	During the semester.	The practical part will consist of two tasks (each task accounts for 5% of the final grade) during seminars/exercises: (1) Task - Environmental assessment according to universal design principles: Evaluation of a selected building/publicly accessible place according to universal design principles, determining its accessibility, advantages and disadvantages and providing suggestions on how it could be better adapted. The task is carried out in groups, a presentation is prepared. (2) Task - Workplace assessment and modeling according to ergonomic principles: Workplace assessment, modeling and creation are carried out, taking into account ergonomic and occupational risk factors.
Workshops	40%	During the semester.	The form of assessment for the practical part - a clinical case consists of an assessment of practical knowledge ($k=0.4$). The assessment (score) of the case presentation is calculated by adding up the scores of all five assessment areas (maximum score - 10). The following areas are assessed: 1. Examination of the person (maximum score - 2): knows and is proficient in all physiotherapy examination methods and principles - 2 points; does not know all physiotherapy examination methods and principles - 1 point; uses only one of the physiotherapy examination methods or does not know them - 0 points. 2. Determining a physiotherapy diagnosis (maximum number of points – 2): having assessed the person's anamnesis and examination data, is able to formulate a physiotherapy diagnosis perfectly and correctly use special terms – 2 points, formulates a physiotherapy diagnosis inaccurately, uses insufficient special terms – 1 point; formulates a physiotherapy diagnosis incorrectly, uses or does not use special terms – 0 points.

			3. Formulation of the goal and objectives of physiotherapy (maximum number of points – 2): is able to correctly state the goal and objectives of physiotherapy – 2 points; formulates the goal and objectives of physiotherapy inaccurately – 1 point; is unable to formulate the goal and objectives of physiotherapy – 0 points. 4. Creation of an individual physiotherapy program, assessment of effectiveness, adjustment (maximum number of points – 3): knows the principles of creating a physiotherapy program and is able to create a justified individual physiotherapy program and demonstrate it – 3 points; knows the principles of creating a physiotherapy program and creates an insufficiently justified physiotherapy program and is able to demonstrate it – 2 points; uncertainly knows the principles of creating a physiotherapy program and is able to create an unjustified physiotherapy program and demonstrate it – 1 point; does not know the principles of creating a physiotherapy program, is unable to create a physiotherapy program and demonstrate it – 0 points. 5. Personal training, communication (maximum number of points – 1): knows and applies the principles of medical ethics, education of the person and/or his relatives – 1 point; does not know and does not apply the principles of medical ethics, education of the person and/or his/her relatives – 0 points. A positive assessment must be received during the clinical case report (in the event of a negative assessment, the clinical case is not included and the final exam assessment is not performed).
Final assessment		During the session.	The cumulative score consists of the scores of the individual parts that have been passed positively. The cumulative score is calculated by summing the scores obtained by multiplying them by the corresponding coefficients, which is averaged to an integer according to the mathematical averaging rules. The final score consists of the scores of the following parts that have been passed positively: theoretical part tests (k=0.2), seminars (k=0.1), exercise part evaluation (k=0.4+0.2=0.6), task completion and presentation (k=0.1).

Author (-s)	Publishing year	Title	Issue of a periodical or volume of a publication	Publishing house or web link
Required reading				
Carolyn Kisner PT, MS Lynn Allen Colby PT, MS John Borstad PT, PhD	2018	Therapeutic Exercise: Foundations and Techniques	7th Edition	F. A. Davis Company
M. Kocius, N. Porvaneckas, V. Uvarovas, I. Šatkauskas, S. Ryliškis	2016	Ortopedija. Traumatologija		Vilniaus universiteto leidykla
B. Zachovajovienė, G. Bušmanienė, G. Garbenienė, P. Zachovajevas, B. Senkanec	2014	Klubo sąnario artrozė ir endoprotezavimas: kineziologija ir kineziterapija		LSMU Leidybos namai

Joseph Hamill, Kathleen M. Knutzen, Timot hy R. Derrick	2014	Biomechanical Basis of Human Movement		Lippincott Williams and Wilkins
S. Brent Brotzman, Robert C. Manske	2011	Clinical Orthopaedic Rehabilitation: An Evidence- Based Approach: Expert Consult - Online and Print		Elsevier Mosby
Bella J. May, Margery A. Lockard	2011	Prosthetics & Orthotics in Clinical Practice: A Case Study Approach		Hardback
Richard G. Ruoti, David M. Morris, Andrew J. Cole	1997	Aquatic Rehabilitation First Edition edition		Lippincott Williams & Wilkins
Rene Cailliet	1996	Soft Tissue Pain and Disability, 3 Sub edition		F. A. Davis Company
S. J. Garrison	1995	Handbook of physical medicine and rehabilitation basics, Spiral edition		Lippincott Williams & Wilkins
A. Šešok	2012	Ortopedinės technikos projektavimas ir gamyba		VGTV leidykla „Technika“ file:///C:/Documents%20and%20Settings/dj2943sa/Local%20Settings/Temporary%20Internet%20Files/Content.IE5/AXJFAZSB/1376-S_Sesok_+Ortopedines_WEB[1].pdf
John E. Edelstein, Jan Bruckner	2002	Orthotics. A Comperhensiv Clinical Approach		Slack Incorporated
Bowker HK, Michael JW	2002	Atlas of Limb Prosthetics: Surgical, Prosthetic, and Rehabilitation Principles		Rosemont, IL, American Academy of Orthopedic Surgeons http://www.oandplibrary.org/alp/
Harry B. Skinner, Patrick J. McMahon	2014	Current Diagnosis & Treatment in Orthopedics		http://accessmedicine.mhmedical.com/content.aspx?bookid=675&sectionid=45451718
Kenneth V. Iserson	2012	Improvised Medicine Providing Care in Extreme Environments		http://accessmedicine.mhmedical.com/book.aspx?bookid=666
Sladyk K, Jacobs K.	2010	Occupational Therapy Essentials for Clinical Competence		Slack Incorporated
A. Kriščiūnas	2008	Reabilitacijos pagrindai		Kaunas, Vitae Litera
Bella J. May, Margery A. Lockard	2011	Prosthetics & Orthotics in Clinical Practice: A Case Study Approach		Hardback
Diane P. Bryant, Brian R. Bryant	2012	Assistive Technology for People with		Pearson Education (US)

		Disabilities, 2nd Edition		
Recommended reading				
D. Lenčiauskienė	2008	Kineziterapija po kelio sąnario raiščių pažeidimų		Klaipėdos kolegija
A. Kriščiūnas, A. Kimtys, I. Rimdeikienė, A. Keizeris, J. Samėnienė, V. Drulytė, R. Savickas, E. Franckevičiūtė, L. Varžaitytė, G. Ušeckienė, E. Bagdžiūtė, A. Prasauskienė, R. Šakalienė	2008	Kineziterapija		Vitae Litera, Kaunas
Krutulytė G., Vatėnienė K.	1998	Fizinė medicina ir reabilitacija		Kaunas
Lietuvos Respublikos socialinės apsaugos ir darbo ministro įsakymas Nr. A1-695	2015-11-26	„Dėl neįgalųjų aprūpinimo techninės pagalbos priemonėmis ir šių priemonių įsigijimo išlaidų kompensavimo tvarkos aprašo patvirtinimo“		Nauja redakcija nuo 2016-01-01
Lietuvos Respublikos sveikatos apsaugos ministro įsakymas Nr. V-465	2009-06-10	„Dėl Valstybės paramos ortopedijos techninėms priemonėms įsigyti organizavimo tvarkos patvirtinimo“		Nauja redakcija
Turner A, Foster M, Johnson S E	1992	Occupational Therapy and physical Dysfunction: Principles, Skills and Practice		Edinburg London Churchill Livingstone
		Journal of Prosthetics and Orthotics		http://www.oandp.org/jpo/
		The Orthotics and Prosthetics Virtual Library		http://www.oandplibrary.org/
Gerard M. Doherty	2010	CURRENT Diagnosis & Treatment: Surgery		http://accessmedicine.mhmedical.com/content.aspx?bookid=343&sectionid=39702828&jumpsectionID=39714157&Resultclick=2
Lowell A. Goldsmith, Stephen I. Katz, Barbara A. Gilcrest, Amy S. Paller, David J. Leffell, Klaus Wolff	2012	Fitzpatrick's Dermatology in General Medicine, 8e		http://accessmedicine.mhmedical.com/content.aspx?bookid=392&sectionid=41138806&jumpsectionID=41150078&Resultclick=2

Jason P. Jundt; Timothy K. Liem; Gregory L. Moneta	2015	Schwartz's Principles of Surgery, Tenth Edition		http://accessmedicine.mhmedical.com/content.aspx?bookid=980&sectionid=59610866&jumpsectionID=59617874
Arthur E. Helfand	2009	Hazzard's Geriatric Medicine and Gerontology		http://accessmedicine.mhmedical.com/content.aspx?bookid=371&sectionid=41587744&jumpsectionID=41599868&Resultclick=2

NOTE: Including Open Educational Resources in the reading list is recommended