



LITHUANIAN SPORTS UNIVERSITY

STUDY MODULE PROGRAMME (SMP)

Module Code	B	115	B	016	Accredited until				Renewal date		
	Branch of Science		Progr.	Registr. №.							

Entitlement

Sport Biomechanics

Prerequisites

Course (module) Learning Outcomes

№.	Learning Outcomes	Teaching / Learning Methods	Assessment Methods
1	Will be able to name and define the basic mechanical principles and laws; apply them to describe and explain athletes' movements; rely on them to evaluate athlete technique.	Assignments, Exercise classes, Formal lecture, Reading list	Examination, Test
2	Will be able to understand aspects of motion neuromechanics; to explain muscle functions by applying concepts, principles and laws of biomechanics, integrating knowledge of biomechanics, anatomy and physiology.	Assignments, Exercise classes, Formal lecture, Reading list	Examination, Test
3	Will be able to explain muscle adaptation (damage and growth / enhancement) under physical stress biomechanical mechanisms integrating mechanics and biology knowledge.	Assignments, Exercise classes, Formal lecture, Reading list	Examination, Test

Main aim

to provide students with the knowledge to understand the basic mechanical principles and laws and to apply them to the analysis of athletic performance: describing athlete movement (technical action), muscle function, and biomechanical mechanisms of muscle adaptation (injury and growth / enhancement).

Summary

The module is designed to introduce the basic mechanical principles and laws on the basis of professional sports would be able to understand and describe the movement of the athlete (sports techniques); interactions between athlete movement and muscle activity (neuromechanics) and between athlete performance and muscle damage and growth. This module integrates knowledge of mechanics, neurophysiology and biology to explain athlete performance.

Level of module

Level of programme		Subject group (under the regulation of the area)
Cycle	Type	
First	Bachelor	

Bendrojo universitetinio lavinimo

Group under financial classification

Syllabus

№.	Sections and themes	Responsible lecturer
1.	Kinematics and dynamics of linear motion. Posture and stability.	
2.	Kinematics and dynamics of angular motion. Muscle biomechanics and neurophysiology.	
3.	Biomechanical aspects of muscle adaptation (injury and growth / strengthening) during exercise.	

Evaluation procedure of knowledge and abilities:

References

№.	Title	Edition in Lithuanian Sports University library		In Lithuanian Sports University bookstore	Number of ex. in the methodical cabinet of the depart.
		Pressmark	Number of exemplars		
1.	Enoka, R (2002, 2008).Neuromechanics of human movement. Champaign, IL: Human Kinetics	796.012:612.76 En-10	2	No	
2.	McGinnis, P.M. (2005) Biomechanics. Champaign, IL: Human Kinetics	796.012:612.76 Mc-01	2	No	
3.	Abernethy, B., Hanrahan, S.J., Kippers, V., Mackinnon, L.T. & Pandy, M.G. (2013) The biophysical foundations of human movement. Champaign, IL: Human Kinetics	612.7 Bi-285	2	No	

Additional literature

№.	Title
1.	Muckus, K. Biomechanikos pagrindai: vadovėlis: LKKA, 2006. -304 p.

Coordinating lecturer

Position	Degree, surname, name	Schedule №.
		303

Subdivision

Entitlement	Code
Department of Coaching Science	2005

Study module teaching form №. 1

Semester	Mode of studies	Structure				Total hours	Credits	
		Theory	Seminars	Lab Works	Ind. work			
A	S	D	18	0	12	100	130	5

Languages of instruction:

Lithuanian	L	English	E	Russian	R	French	F	German	G	Other	Oth.
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Plan of in-class hours

№. of Themes	Academic hours			№. of Themes	Academic hours		
	Theory	Seminars	Lab Works		Theory	Seminars	Lab Works
1.	6	0	4	3.	6	0	4
2.	6	0	4				
Total:					18	0	12

Schedule of individual work tasks and their influence on final grade

	№. of syllabus	Total hours	Influence on grade, %	Week of presentment of task (*) and reporting (o)																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17-20
Test	1	20	20	*						0										
Exam	1-3	40	40	*															0	
Test	2	20	20							*		0								
Test	3	20	20									*						0		
Total:	-	100	100																	

Study module teaching form №. 2

Semester	Mode of studies	Structure	Credits
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