



Table 2

**3.2. Course description**

Basic description		
Course coordinator	Doc. dr. sc. Stanislav Peharec	
Course title	Neurophysiology of locomotion	
Study programme	Physiotherapy graduated study	
Course status	compulsory	
Year	2	
ECTS credits and teaching	ECTS student 's workload coefficient	3,5
	Number of hours (L+E+S)	15+10+30

1. COURSE DESCRIPTION		
1.1. Course objectives		
Learn the elements important in neurophysiology of locomotion and motor control of movement. Measurement of locomotion Kinematics. measurement of Kinetic variables. Measurement of Myoelectric variables and surface electromyography .		
1.2. Course enrolment requirements		
- Course enrolment requirements include		
1.3. Expected course learning outcomes		
Evaluation of general properties of locomotion measurement system and requirements of locomotion measurement system. Use of ground reaction force measuring platforms and pressure distribution measurement systems. Application and evaluation of surface electromyography. Apply the knowledge about neuronal anatomical structures in control and coordination of movement. Function of fatigue		
1.4. Course content		
Cell membrane, actional potential, information transmission, skeletal muscle, muscle receptors, motor units and electromyography. Anatomy of nervous system: brain anatomy, cerebral cortex, cerebellum, basal ganglia, ascending and descending pathways, muscle memory, spinal memory and motor learning. Excitation and inhibition within spinal cord, monosynaptic reflexes, oligosynaptic and polysynaptic reflexes, voluntary control of single muscle, single-joint movements. Motor control, motor synergies, postural control, locomotion, multi-joint movement, hand joints and muscle, eye movement and vision, kinesthesia, Fatigue. Kinematic: methods of measurement of locomotion kinematics, Kinetics: methods of measurement of kinetic variables. Surface electromyography, myoelectrical signal model, myoelectrical signal processing. Application of surface electromyography.		
1.5. Teaching methods	<input type="checkbox"/> x lectures <input checked="" type="checkbox"/> x seminars and workshops <input type="checkbox"/> x exercises <input type="checkbox"/> long distance education <input type="checkbox"/> fieldwork	<input type="checkbox"/> x individual assignment <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratories <input checked="" type="checkbox"/> x mentorship <input type="checkbox"/> other
1.6. Comments	Most teaching is carried out through field work	



**1.7. Student's obligations**

Regular attendance to lectures, seminars and exercises. Preparation of the course content to be discussed during seminars and practicals.

**1.8. Evaluation of student's work**

Course attendance	5%	Activity/Participation	10%	Seminar paper		Experimental work	
Written exam	10%	Oral exam	20%	Essay		Research	
Project		Sustained knowledge check	55%	Report		Practice	
Portfolio							

**1.9. Assessment and evaluation of student's work during classes and on final exam**

Evaluation would be performed according the actual Rules on studies of University of Rijeka (approved by the Senat) and the Faculty of medicine (approved by the Faculty council). In this system, the overall students' outcome is made up 70% of their achievement during the course itself and 30% of the success in the final exam.

Achievements during the course will be evaluated by: a) sustained knowledge check (partial tests, partial exams and other activities in classes), b) activity during the course, c) seminar paper or presentation, d) course attendance

**1.10. Assigned reading (at the time of the submission of study programme proposal)**

Study programs, which are outside of recommended books, will be presented as additional literature on web pages or share portal of the Department.

**1.11. Optional / additional reading (at the time of proposing study programme)**

- 1) Latash ML: Neurophysiological Basis of Movement. Human Kinetics. USA, 2008.
- 2) Medved V: Measurement of Human Locomotion CRC Press New York, 2001.

**1.12. Number of assigned reading copies with regard to the number of students currently attending the course**

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Title	Number of copies	Number of students

**1.13. Quality monitoring methods which ensure acquirement of output knowledge, skills and competences**