Study program: Special Education and Rehabilitation, module Motor Disability

Type and level of studies: Basic Academic

Title of the subject: Biological Foundations of Motor Functions

Lecturer: Dragan S. Marinković

Course status: Obligatory

ECTS: 6

Prerequisites: none

Aim:
To introduce students with biological mechanisms of human motor activity. The knowledge about execution of normal human movement and analysis of normal posture and complex movements (walking, running etc.) are prerequisites for further education in diagnostics and rehabilitation of person with motor disability. Student will be introduced with impairments of motor functions that are consequences of functional and structural distortions of locomotor system.

Outcomes:
Students acquire knowledge about biological foundations and biomechanics of human motor functions. They will be trained for analysis of human body movements, analysis of various body postures and complex sequences of movement in normal conditions, as well as, for evaluation of consequences of functional and structural distortions of locomotor system for execution of motor movements. Acquired knowledge represent precondition in their training for clinical diagnostics of human motor dysfunction.

Content

*Lectures:*1. Functional anatomy of all elements of locomotor system(bones, joints, muscles, peripheral and central nervous system). 2. Physiology of bones and muscles, neurophysiological basis of peripheral and central nervous system functioning, with special attention on cardiovascular and respiratory system. Special cautionis given to physiology of these systems in preparation, and execution of motor activities, as well as to motor control, motor learning, and physiology of peripheral and central fatigue.3. Biomechanics as science that study laws of mechanics and dynamics in human motor activities. 4. Analysis of human body movements from the point of biomechanics. 5. Analysis of different modalities of standing posture, sitting posture and lying posture, and especially walking and running. 6. Kinesiological analysis of normal walking and walking dysfunction as consequence of locomotor system impairments.

*Practical work:*Practical work follows thematic areas of theoretical lectures.

Literature

1. Stevanović, S., Kineziologija i primenjena anatomija; Štamparija d.o.o. „Zagorac“, Beograd, 2002
2. Nikolić D., Kineziologija, Viša medicinska škola, Ćuprija 2006
3. V.G. Payne, L.D. Isaacs; Human Motor Development: A Lifespan Approach, Mayfiel Publishing Company, 2008

Number of active classes per week:	**Lecture: 2**	**Practical work: 2**

Teaching methods:

Classical educational method using PowerPoint presentations, presentation and discussion of different videos, writing of seminar papers and active learning.

Evaluation of knowledge (maximum score 100)

Pre obligations	**Score**	**Final exam**	**Score**
activities during the lectures	10	written exam	
practical teaching	10	oral exam	50
midterm(s)	20	.....	
seminars	10		