

Information sheet for the course Biomechanics of the movement apparatus

University: <i>Alexander Dubček University of Trenčín</i>	
Faculty: <i>Faculty of Health Care</i>	
Course unit code: <i>BPA/e</i>	Course unit title: <i>Biomechanics of the movement apparatus</i>
Type of course unit: <i>compulsory</i>	
Planned types, learning activities and teaching methods: <i>Lecture: 1 hours weekly/13 hours per semester of study; full-time</i>	
Number of credits: <i>2</i>	
Recommended semester: <i>4th semester in the 2nd year (part-time)</i>	
Degree of study: <i>I (bachelor)</i>	
Course prerequisites: <i>none</i>	
Assessment methods: <i>The student will get 50 points per semester:</i> <i>-Active participation</i> <i>-Handing in a seminar work about a certain topic and its presentation in Power Point (25 p)</i> <i>-Test (25 p)</i> <i>For receiving a grade A the student must get at least 47 points, for B at least 43 points, for C at 39 points, for D at least 35 points and finally for E at least 30 points.</i>	
Learning outcomes of the course unit: <i>By attending the course Biomechanics of the movement apparatus, the student will have theoretical knowledge of how the human movement apparatus functions; he will know the basic biomechanical analysis of separate segments of the human body. He will have knowledge about lever mechanism, stiffness and flexibility of the tissues and he will understand the specifics of the movement in the water. He will be able to apply the gained information about kinematics and dynamics of the movement to the physiotherapeutic practice.</i>	
Course contents: <ol style="list-style-type: none"> <i>1.Introduction to the biomechanics (defining of the basic terms, object and fulfillments of the human biomechanics, relation of biomechanics with other fields of science)</i> <i>2.Human body as a tangible system</i> <i>3.Stiffness and flexibility of the tissues in the movement system (bone, cartilage, ligament, muscle), the law of deformation</i> <i>4.Structure of the human movement system (segments of the human body) and movement technique</i> <i>5.Mechanics of the movement system (linking of bones and their extension)</i> <i>6.Biomechanical characteristic of the movement of the human body (lever mechanism)</i> <i>7.Kinematics and dynamics of the movement (the use of basic physical laws with analyzing the movement)</i> <i>8. Specifics of the movement in the water (hydrostatic lift force)</i> <i>9.Biomechanical basics of the movement during exercise</i> <i>10.Characteristic of the movement of people (type of movement while exercising, characteristic in time and space)</i> 	
Recommended of required reading: <ol style="list-style-type: none"> <i>1. JANURA, M. 2003. Úvod do biomechaniky pohybového systému človeka. Univerzita in Olomouc, Fakulta tělesnékultury, 2003, ISBN 80-244-0644-6.</i> <i>2. LEŠKO, M. 2009. Biomechanika – semináře. Bratislava UK, 2009, ISBN 978-80-223-2631-5.</i> 	

3. KONIAR, M., LEŠKO, M. et al. 1990. *Biomechanika pohybového aparátu človeka*. Univerzita Komenského, Vysokoškolská učebnica, Bratislava, 1990, ISBN 80-08-00331-6.
4. NORDIN, M., FRANKEL, V. 2001. *Basic biomechanics of the musculoskeletal system*. Lippincott Williams & Wilkins, 2001, ISBN 13-978-0-683-30247-9.

Language: *Slovak*

Remarks:

Evaluation history: *Number of evaluated students*

A	B	C	D	E	FX

Lectures: *PaedDr. Iveta Petriková Rosinová, PhD., MHA.*

Last modification: *22.04.2014*

Supervisor: *doc. MUDr. Juraj Čelko, PhD.*