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| 1. Course title: Motor Learning Motor Control | | | | | |
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| 2. Code: | | 3. Type (lecture, practice etc.): lecture | | | |
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| 4. Contact hours: 2 hoursper week | | 5. Number of credits (ECTS): 2 | | | |
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| 6. Preliminary conditions (max. 3): | | | | | |
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| 7. Announced:fall semester, spring semester, both | | | | | |
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| 8. Limit for participants: 150 | | | | | |
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| 10. Responsible teacher (faculty, institute and department):  Tamas Atlasz PhD (Faculty of Science, Institute of Sport Sciences and Physical Education, Dept of. Sportbiology) | | | | | |
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| 11. Teacher(s) and percentage: | | Dr. Tamas ATLASZ | | 100 % | |
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| 12. Language:English | | | | | |
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| 13. Course objectives and/or learning outcomes:  The subject is provides the student with an introduction to the human nervous and muscle systems. Motor learning study focuses on the behavioral, biomechanical, and neural bases of development, acquisition, and performance of functional movement skills. Motor control is concerned with issues of control and coordination of such fundamental motor activities as posture, locomotion, multi-joint reaching movement. | | | | | |
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| 14. Course outline  1. Brief history of motor learning and motor control. Physiologic anatomy of skeletal muscle. Contraction of skeletal muscle. Excitation-contraction coupling. Electromyography (EMG).  2. The neurological bases of human movement. Organization of the nervous system. Resting membrane potentials. Action potentials.  3. Basic functions of synapses and neurotransmitters.  4. Neuromuscular transmission. Motor endplate and motor unit. Electromyography (ECG).  5. Receptors in the nervous system, receptor potentials. The spinal cord. Dermatomes.  6. Reflex arc. Spinal reflexes. Patellar reflex, flexor & cross extensor reflex. Golgi tendon reflex.  7. Somatosensory mechanisms. Thalamus. Somatosensory cortex.  8. The cerebral cortex: structure and function.  9. Somatomotor system. Primary motor cortex, which executes voluntary movements. Supplementary motor areas and premotor cortex, which select voluntary movements. Posterior parietal cortex. Dorsolateral prefrontal cortex. The pyramidal system.  10. The extrapyramidal systems I. Basal ganglia.  11. The extrapyramidal systems II. The cerebellum.  12. Principles of learning motor skills. Methods of motoric control: positive- negative feedback.  13. Preparing learners for practice: Motivation and attention. | | | | | |
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| 15. Mid-semester works  Attending lectures is highly recommended. | | | | | |
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| 16. Course requirements and grading  Written exam is based on lectures, accessible electronic sources and lecture materials.  Written or oral examination.  Grades:  0–50% fail  51–65% acceptable  66–75% average  76–90% good  91–100% excellent | | | | | |
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| 17. List of readings  *Schmidt and Wrisberg: Motor Learning and Performance (Third Edition),*  *Schmidt and Lee: Motor Control and Learning (Third Edition)*  *Gayton and Hall: Medical Physiology*  *Pocock and Richards: Human Physiology, The Basis of Medicine*  *Larry R. Squire: Fundamental Neuroscience*  *Heimer: The Human Brain and Spinal  Cord (Second Edition)* | | | | | |
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| 18. Recommended texts, further readings  McComas AJ (1996) Skeletal muscle. Form and Function | | | | | |
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| **Date** | 10 May, 2017 | **Prepared by** |  | | |
| Dr. Tamas Atlasz  responsible teacher | | |
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| **Endorsed by** | | |  | | |
| Dr. Mark Vaczi program supervisor | | |