Study programme: Undergraduate Academic Studies / Bachelor with Honours in Sport and Physical Education

Subject name: FUNDAMENTALS OF BIOMECHANICS / OA16

Teacher/Teachers: Borislav Obradović, PhD

Subject status: Mandatory

ECTS credits: 3

Requirements: Functional Anatomy 1

Subject aim

Studying biomechanics of human movements with the accent on teaching physical education, training, rehabilitation, injury prevention and improvement of movement

Subject outcome

Students will understand and master the principles of functional anatomy and mechanics and their impact on the movement of humans; they will be able to analyse the relevant motor and movement structures very well; they will acquire the knowledge and ability to apply the course content both in teaching and training activities.

Subject content

Theory

What is Biomechanics?, Kinematic terms for movement analysis, Kinematic terms for human movement analysis, Balance and movement, Bone biomechanics, Joints biomechanics, Skeletal muscle biomechanics, Biomechanics of upper extremity – shoulder, Biomechanics of upper extremity – elbow, Biomechanics of upper extremity – arms, Biomechanics of lower extremity – hip, Biomechanics of lower extremity – knee, Biomechanics of lower extremity – ankle joint, Biomechanics of spine.

Practice

Anatomical reference levels and terminology of movements, Anatomical reference levels and terminology of movements, Anatomic reference axes and terminology of movement, Anatomic reference axes and terminology of movement, Balance and movements, Balance and movements, Formula of muscular analysis, Exercise analysis, Sport technique analysis.

Literature

1) Opavsku, P. (1976). Osnove biomehanike. Beograd: Naučna knjiga.
2) Hall, S.J. (2003). Basic biomechanics. New York: McGraw-Hill Higher Education
3) Bubanj, R. (1997). Osnovi primenjene biomehanike u sportu. Niš: Pergament
4) Bubanj, R. (1997). Osnovi primenjene biomehanike u kineziologiji. Niš: Pergament
5) Whiting, W.C., Rugg, S. (2006). Dynatomy – Dynamic Human Anatomy. Champaign, IL: Human Kinetics
6) McGinnis, P.M. (2005). Biomechanics of Sport and Exercise - 2nd Edition. Champaign, IL: Human Kinetics

Number of active teaching classes	**Theory:** 2	**Practice:** 1

Teaching methods

Lectures, exercises, consultations, extracurricular activities

Knowledge assessment (maximum number of points is 100)

Pre-exam requirements	points	**Final exam**	points
engagement in class activities		written exam	55
practice	30	oral exam	
term test(s)	15	field work	
seminar(s)			