Study program: Physical Education and Sport

Type and level of studies: Master academic studies

Course title: RESEARCH IN BIOMECHANICS

Lecturer or lecturers (for lectures)**:**Ilic B. Dusko
Lecturer / Associate (for practice): Mrdakovic D. Vladimir

Course status: Elective

ECTS: 5

Condition: none

Course objectives:
The aim of the course is to introduce students to research methods in biomechanics, with measuring apparatus used in biomechanical research, to carry out biomechanical measurement methods and techniques, interpret the basic groups of results, interpret and analyze scientific literature, and to prepare students for complementary contents that are being processed on doctoral studies.

Course outcome:
It is expected that each student will be able to carry out the acquisition of signals with the basic apparatus used in biomechanical research for various types of simple and complex movements; to perform the basic processing and interception of the received signals, all in the service of sports practice; The intention is for the best students to be trained in: critical analysis of scientific literature; precise definition and setting of the experimental paradigm, interpretation of the obtained results; conceiving methods in experiments realization.

Contents description:
Theoretical instruction
Definitions of concepts in biomechanical researches. Techniques and methods for estimating motion and movement of the locomotor system. Techniques and methods for assessing the biomechanical and physiological properties of muscles. Evaluation of the technique of movement within sports activities using biomechanical testing. Techniques and methods for assessing muscle fatigue for different types of movements in sports activities. Interpretation of results and efficiency and economy of movement diagnostics.
Practical classes:
Technical introduction and handling with biomechanical instruments. System calibration and configuration. System synchronization. Marking the reference anatomical locations and recording the movement of the locomotor system. Processing of the raw signals. Displaying analysis of the results

References:
1. David A.Winter (2005): Biomechanics and Motor Control of Human Movement - Third edition. John Wiley & Sons;
2. Gordon E. Robertson, Graham Caldwell, Joseph Hamill, Gary Kamen, Sandy Whittlesey. (2004): Research Methods in Biomechanics. Champaign, IL: Human Kinetics

No. of active classes				Other classes:
Lectures: 3	Exercises: 1	Other forms of teaching:	Study research work:	8

Teaching method
Theoretical lectures; practical lectures in laboratory and in computer classroom; Independent laboratory work of student

Knowledge assessment (maximum score 100)

Exam prerequisites	**points**	**Final examination**	**points**
Class Activities	25	Written examination	30
Practical instruction	15	Oral examination	
Colloquiums	15	.....	
Seminar papers	15		