Course title: THEORETICAL BASIS OF APPLIED RESEARCHES 1

Lecturer or lecturers (last name, middle name)**:Ilic B. Dusko, Lazarevic A. Dusanka, Ilic Z Vladimir**

Course status: Obligatory

ECTS: 10

Condition: Listened subjects from the first and second semester

Course objectives:

Acquiring an insight into the application of relevant theoretical knowledge and physiological, biological, psychological, biomechanical methodology and methodology of motor control (hereinafter PBPBMC profile) to various problems of research in sport, physical education and recreation (hereinafter SPER) according to the level of ability and age.

Complex application of structures on knowledge about connections between classical body constitutional acknowledgements of the locomotor system, as well as the physiological and kinesiological properties of various structures of human movement, respecting psychological characteristics and biological features in accordance with the period of SPER development. Also, to familiarize students with procedures of synchronized development with respect to curative procedures in physical education, and to form recognition of standards as well as their modalities and in the application of psycho-sociotherapeutic, training and nutritional procedures in SPER.

Examining the various methods used in the analysis and interpretation of the obtained results in order to connect various properties described from the aspects of physiology, biology and psychology that are contained in phenomena of manifesting physical activity in the SPER.

Course outcome:

As a result of the successful fulfillment of all the obligations stimulated in the course program, it is expected from students to be trained in the use of relevant theoretical knowledge and research methods in the field of physiology, biology and psychology in the independent creation and solution of research problems in SPER. The created theme must bear the specificity of the application, while on the other hand it must be comprehensive in all aspects and unconditionally widespread.

Course description:

Physiological structure: Applying knowledge from the hormone status and hormone balance in order to identify the mechanisms of their action (testosterone, growth hormone, ethylamines, insulin, glycagon, thyrixin, etc.) as triggers, inhibitors of physical activity and what kind of adhesion and feedback they have with combined programs of physical activity and programmed nutrition. Application of knowledge about the mechanism of fat deposits in organism, and about the methods of their degradation and energy utilization in accordance with the form, extent and intensity of physical activity. Effects of hunger and wrong exercise. Changes in the cardiovascular system with aging and the impact on it by physical exercise, change in the environment and nutrition. Adaptation of the respiratory system to eliminate climatic conditions, training conditions and operating modes. Adaptation of the organism to LA and ALA loads as well as at the level of micro and macro structure forms and time intervals of reaction and supercompension of soft tissues that determine the training program. Acute and chronic reaction of CNS and muscle response to different methods of strength training in sport. The role, distribution and effects of water in the body during various physical loads, as well as the balance of the water during starvation and special psychological conditions. Prevention of edema and maintenance of sufficient amount of fluid in circulation and favoring of good state of body fluids by stable hormonal relationship between BNP and aldosterone. The influence of thermo and cryo therapy on the recovery and behavior of muscle tissue. Overtraining at the level of muscular structure and creation of irreversible processes at the level of the muscule-tendon apparatus. Stability of CNS in relation to local and / or central fatigue in terms of degree of sustainability of motor programs as well as forms of compensating movements.

Development biology structure: Application of knowledge structure from the phenomenon of adaptation and acceleration of development. Ergometry in schools and other institutions. Evaluation of human skills in order to select athletes - sports selection. Designing conditions for the nature and intensity of sports trauma. Application of nutrition and sports supplementation and recognition of emergency states. Models of nutrition and natural substitution in schools and recreational centers and institutions.

Psychological structure: Relations between personality and behavior / achievement in sport and exercise; Motivation in sport and motivation for participation in exercise and perseverance in exercise; Attention and sport achievement; excitation, anxiety and sports achievement; Confidence and sport achievement; Psychological adaptations to training loads; Processes in a sports and recreational group; Communication in sport and practice; The suitability of exercise and psychological characteristics during the life cycle (childhood, adolescence, adulthood and age). Youth and sporting activities (reasons for participating in sport, abandoning sport, perceiving personal competence for practicing sport); Motivational climate in physical education and setting goals in physical education; Anxiety of students in the teaching of physical education; Social and emotional learning in physical education; Physical exercise and development of self-concept in youth; Self-regulated learning in acquiring motor skills.

References:

1. Ilic, B.D., Mrdaković, D.V. (2009). Neuromehanicke osnove pokreta, STR Gajić (selected chapters).
2. Winter, M.E., Jones, M.A., Davison, R.C.R .; Bromley, D.P. and Mercer, H.T. (2008). Sport and Exercise Physiology Testing Guidelines. London: Routledge, (selected chapters)
3. Malina, M.R., Bouchard, C., Bar-Or, O. (2004): Growth, maturation and physical activity, Human Kinetics
4. Abernethy, B., Hanrahan, S. J., Kippers, V. and Pandy, M. G. (2012). The biophysical basis of the human movement. Belgrade: Data Status (selected chapters).
5. Weinbegr, R. S. & Gould, D. (2007). Foundations of Sport and Exercise Psychology (4th Edition). Human Kinetics (selected chapters)
6. Liukkonen, J., Auweele, Y. V., Vereijken, B., Alfermann, D. & theodorakis, Y. (2007). Psychology for Physical Educators - Student in Focus. Human Kinetics (selected chapters).

No. of active classes	Lectures:	Study research work:
	4	**4**

Teaching method: Lectures, work in small groups, seminar papers, homework assignments

Knowledge assessment (maximum score 100)

Class Activites - **30**

Colloquium - **30**