

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
<b>Predmet:</b>	Kineziologija v monostrukturnih športih
<b>Course title:</b>	Kinesiology in Mono-structural Sports

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Doktorski študijski program		1	1 ali 2
Doctoral study program		1	1 or 2

Vrsta predmeta / Course type

Izbirni/elective

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
20	25	15		65		5

Nosilec predmeta / Lecturer:

prof. dr. Milan Čoh

Jeziki /

Predavanja / Lectures: Slovenski/Slovene

Languages:

Vaje / Tutorial:

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Izpolnjevanje pogojev za vpis na doktorski študij Kineziologija

Prerequisites:

General conditions for enrolment into the Doctoral Programme of Kinesiology

Vsebina:

Predmet je razdeljen na naslednje vsebinske sklope:

- Biomehanska diagnostika in objektivizacija gibalnih struktur – integrativno proučevanje monostrukturnih športnih aktivnosti ( kinematika, dinamika, EMG, funkcionalne in biokemijske značilnosti)
- Mehansko modeliranje in računalniška simulacija gibanja v monostrukturnih športnih aktivnostih
- Proučevanje metodologije in modeliranja baze znanja na področju teorije izbranega športa
- Optimizacija vadbenih procesov v vzdržljivostnih športih
  - Ekspertni modeli identifikacije talentov in tekmovalne uspešnosti v monostrukturnih športnih aktivnostih
  - Teorije in prakse pri načrtovanju vadbenih procesov v monostrukturnih športih

Content (Syllabus outline):

The course is divided in the following modules:

- Biomechanical diagnostics and objectivisation of movement structures – integrated study of monostructural sport activities (kinematics, dynamics, EMG, functional and biochemical characteristics)
- Mechanical modelling and computer simulation of movements in monostructural sport activities
- Study of the knowledge base methodology and modelling in the theory of the selected sport
- Optimisation of training processes in endurance sports
- Expert models for identification of talents and competitive performance in monostructural sport activities
- Theories and practices in the planning of training processes in monostructural sports
- Control of thermoregulation processes using thermovision in monostructural cyclic activities
- Development of speed of simple and complex reactions using controlled neurological protocols

- Kontrola termoregulacijskih procesov s pomočjo termovizije v monostrukturnih cikličnih aktivnostih
- Razvoj hitrosti enostavne in kompleksne reakcije s pomočjo vodenih nevroloških protokolov
- Zasnova, načrtovanje in izpeljava znanstvenega projekta vključno z pripravo poročila o doseženih rezultatih raziskovanja in načina predstavitve rezultatov znanstveni in strokovni javnosti.

- Design, planning and implementation of a scientific project, including the drawing up of a report on research results and result presentation method to the scientific and professional communities.

#### Temeljni literatura in viri / Readings:

Morrow J.: Measurement and valuation in Human Performance, Human Kinetics, Champaign, IL, 2005.  
Zatsiorsky V.: Biomechanics in Sport, Blackwell Science, 2000.

Robertson D., Caldwell G., Hamill V. , Kamen G., Whittlesey S.: Research Methods in Biomechanics. Human Kinetics, Champaign, IL, 2004

Peri T., Nelson J.: Research Methods in Physical Activity. Human Kinetics, Champaign, IL, 2001

Hoffman J.: Norm for Fitness Performance and Health, Human Kinetics, Champaign, IL , 2006.

Weineck, J.: Optimales Training. Spitta Verlag GmbH & Co, 2008

Whiting W., Zernicke, R.: Biomechanics of Musculoskeletal Injury, Human Kinetics, Champaign, IL, 1998.

Škof B. in sod.: Šport po meri otrok in mladostnikov – Pedagoško-psihološki in biološki vidiki kondicijske vadbe mladih, Fakulteta za šport, Univerza v Ljubljani, 2007.

Bartlett R.: Sports Biomechanics – Reducing Injury and Improving Performance, E & FN Spon, Imprint of Routledge, 1999.

Čoh, M.: *Biomechanical diagnostic methods in athletic training*. Ljubljana: Faculty of Sport, Institut of Kinesiology, 2008. ISBN 978-961-6583-61-9.

Čoh, M.: *Biodynamic analysis of sprint, jumps and agility*. Faculty of Sport, Faculty of Sport, Institut of Kinesiology, 2019. ISBN 978-961-6843-94-2.

Bompa T.: *Periodization – Theory and Methodology of Training*. Human Kinetics, Champaign, IL, 1999

Jošt, B., Pustovrh, J., Ulaga M., Jošt. P.: The latent dimensions of selected morphological and motor variables in ski jumpers. *Stud. Phys. Cult. Tour.*, 2006, vol. 13, suppl., str. 137-140.

**Cilji in kompetence:****Objectives and competences:****Cilji:**

- Študenti bodo dobili specifična, poglobljena znanja s področja kineziologije monostrukturnih športov, ki jih bodo povezali z znanstveno-raziskovalnim in razvojnim delom,
- Seznanili se bodo z sodobnimi diagnostičnimi tehnologijami v področju kineziologije monostrukturnih športov,
- Naučiti študente povezovanja znanstveno raziskovalno delo z prakso,
- Razviti komunikacijske sposobnosti študentov z vidika prezentacije rezultatov znanstvenega dela na konferencah, kongresih in okroglih mizah.

**Specifične kompetence:**

- Sposobnost samostojnega znanstveno-raziskovalnega in razvojnega dela na področju kineziološke znanosti,
- Razviti sposobnost pisanja znanstveno raziskovalnih del za mednarodne in domače znanstvene revije,
- Razviti kritičen odnos do rezultatov lasnega znanstveno raziskovalnega dela,
- Razviti sposobnost timskega sodelovanja s strokovnjaki različnih področij,
- Obvladati delo z raziskovalnimi tehnologijami.

**Objectives:**

- Students will gain specific, in-depth knowledge in the field of kinesiology of monostructural sports that they will connect with their scientific-research and development work.
- They will learn about modern diagnostic technologies in the area of kinesiology of monostructural sports.
- They will learn how to connect the scientific-research work with the practice.
- Students will develop communication skills in terms of presentation of the results of the scientific work at conferences, congresses and round tables.

**Specific competences:**

- Ability to independently perform scientific-research and development work in the science of kinesiology.
- Develop the ability to write scientific-research papers for international and domestic scientific journals.
- Develop a critical attitude to the results of their own scientific-research work.
- Develop the ability for team work with experts from various fields.
- Gain proficiency in working with research technology.

**Predvideni študijski rezultati:**

- Znajo smiselno načrtovati in izvesti eksperiment,
- Znajo upravljati z raziskovalno tehnologijo,
- Znajo zasnovati, načrtovati in izpeljati znanstveni projekt vključno z pripravo poročila o doseženih rezultatih raziskovanja in načina predstavitve rezultatov znanstveni in strokovni javnosti,
- Znajo oblikovati znanstveni tekst,
- Znajo komunicirati z raziskovalci s sorodnih področij.

**Intended learning outcomes:****Knowledge and understanding:**

- They learn how to reasonably plan and conduct an experiment.
- They learn how to manage the research technology.
- They learn how to design, plan and implement a scientific project, including the drawing up of a report on research results and result presentation method to the scientific and professional communities.
- They learn how to make a scientific paper.
- They learn how to communicate with the researchers from related fields.

**Metode poučevanja in učenja:****Learning and teaching methods:**

Predavanja, seminarji, eksperimentalne vaje, javni kolokviji, laboratorijske meritve, terenske meritve.

Lectures, seminars, laboratory work, public colloquia, laboratory measurements, field measurements.

<b>Načini ocenjevanja:</b>	Delež (v %) / Weight (in %)	<b>Assessment:</b>
<p>Način (pisni izpit, ustno izpraševanje, naloge, projekt)</p> <p>Ustni izpit, uspešno izveden eksperiment, seminar z zagovorom, objava članka v mednarodni znanstveni reviji .</p>	<b>100 %</b>	<p>Type (examination, oral, coursework, project):</p> <p>Oral examination, successfully carried out an experiment, seminar and presentation, publication of an article in an international scientific journal.</p>

**Reference nosilca / Lecturer's references**

ČOH, Milan, BONČINA, Nejc, ŠTUHEC, Stanko, MAĆKAŁA, Krzysztof. Comparative biomechanical analysis of the hurdle clearance technique of Colin Jackson and Dayron Robles : key studies. *Applied sciences*, ISSN 2076-3417, May 2020, vol. 10, iss. 9, art. 3302, 10 str.

ŠIROK, Brane, GOSTIŠA, Jurij, SEČNIK, Matej, MAĆKAŁA, Krzysztof, ČOH, Milan. Application of wind tunnel device for evaluation of biokinetic parameters of running. *Symmetry*, ISSN 2073-8994, 2021, vol. 13, no. 3, str. 1-17.

MAĆKAŁA, Krzysztof, RAUTER, Samo, ZAWARTKA, Marek, ČOH, Milan, VODIČAR, Janez. The relationship between symmetrical and asymmetrical jumps and their influence on speed abilities : gender consideration. *Symmetry*, ISSN 2073-8994, 2021, vol. 13, no. 4, art. 694, str. 1-13.

MAĆKAŁA, Krzysztof, RAUTER, Samo, ŠIMENKO, Jožef, KREFT, Robi, STODÓŁKA, Jacek, KRIŽAJ, Jožef, ČOH, Milan, VODIČAR, Janez. The effect of height on drop jumps in relation to somatic parameters and landing kinetics. *International journal of environmental research and public health*, ISSN 1660-4601.

ČOH, Milan. Motor and intellectual development in children : a review. *Facta Universitatis. Series, Physical education and sport*, ISSN 1451-740X, 2020, vol. 18, no. 3, str. 515-523.

ČOH, Milan, VODIČAR, Janez, ŽVAN, Milan, ŠIMENKO, Jožef, STODÓŁKA, Jacek, RAUTER, Samo, MAĆKAŁA, Krzysztof. Are change-of-direction speed and reactive agility independent skills even when using the same movement pattern?. *Journal of strength and conditioning research*, ISSN 1064-8011, July 2018, vol. 32, no. 7, str. 1929-1936.

ČOH, Milan. *Track and field applied research in sprint and jump*. Saarbrücken: Lambert Academic Publishing, 2014. 110.

ČOH, Milan, MACKALA, Krzysztof. Differences between the elite and sub-elite sprinters in kinematic and dynamic determinations of countermovement jump and drop jump. *Journal of strength and conditioning research*, ISSN 1533-4287, nov. 2013, vol. 27, issue 11, str. 3021-3027.

ČOH, Milan, ŠTUHEC, Stanko, SUPEJ, Matej. Comparative biomechanical analysis of the rotational shot put technique. *Coll. antropol.*, 2008, vol. 32, no. 1, str. 315-321.

ČOH, Milan, ŠIROK, Brane. Use of thermovision method in sport training = Upotreba termovizijskih metoda u sportskom treningu. *Facta Universitatis. Series, Physical education and sport*, 2007, vol. 5, no. 1, str. 85-88.

ČOH, Milan, HÉBERT-LOSIER, Kim, ŠTUHEC, Stanko, BABIĆ, Vesna, SUPEJ, Matej. Kinematics of Usain Bolt's maximal sprint velocity. *Kinesiology : international scientific journal of kinesiology and sport*, ISSN 1331-1441. [English ed.], 2018, vol. 50, iss. 2, 9 str.