UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Diagnostične metode
Course title:	Diagnostic methods

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Kineziologija, 2. stopnja / Kinesiology, masters' study	vse / all study fields	1	1

Vrsta predmeta / Course type | obvezni /obligatory

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30 (obvezni del /obligatory)	**10**	**80**		**30**	**90**	**8**
10 (izbirni del/selective):	**5**	**15**			**30**	**2**
Analiza hoje 10	*5*	*15*			*30*	*2*
Analiza napora 10	*5*	*15*			*30*	*2*
Izokinetika II 10	*5*	*15*			*30*	*2*
Analiza socialnega statusa 10	*5*	*15*			*30*	*2*
Skupaj: 40	**15**	**95**		**30**	**120**	**10**

Nosilec predmeta / Lecturer: | prof. dr. Anton Ušaj
izr. Prof. Matej Supej

Jeziki / Languages:	**Predavanja / Lectures:**	slovenski, lahko angleški /Slovene, possible English
	Vaje / Tutorial:	slovenski, lahko angleški /Slovene, possible English

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

Prerequisits:

Ni	Non

Vsebina:

Posebnosti: Vsi študenti poslušajo obvezni del v obsegu 8 KT, pri izbirnem delu pa si izberejo eno izmed ponujenih vsebin v obsegu 2 KT.

Obvezni del:
- Živčno-mišični sistem
  - Mišična mehanika
  - Izometrične meritve moči
    - Največje sile in navori v odprti in zaprti kinetični verigi
    - Nivo aktivacije
    - Mišično ravnovesje
  - Evocirani potenciali (M, H, F)
  - Visko-elastična togost mišic
  - Merjenje ravnotežja (ravnotežne plošče)
- Biomehanska analiza gibanja
  - Kinematika (video, pospeškometri, GPS)
  - Dinamika
  - EMG
- Izokinetika I
  - Največji navor v posameznih sklepih
  - Odnos navor-kot v posameznih sklepih
  - Koncentrično/koncentrično razmerje
  - Koncentrično/ekscentrično razmerje
  - Togost v posameznih sklepih
- Fiziološki testi
  - poraba kisika, izmenjava plinov

Content (Syllabus outline):

Peculiarity:
All students attend compulsory part of 8 ECTS, in elective part they chose one of the offered courses in range of 2 ECTS.

Compulsory part:
- Neuro-muscular system
  - Muscle mechanics
  - Izometric strength measurement
    - Maximal force and torques in open and closed kinetic chain
    - Muscle activation level
    - Muscle balance
  - Evoked potentials (M, H, F)
  - Visco-elastic muscle stiffness
  - Balance (balance plates)
- Biomechanical analysis of movement
  - Kinematics (video, accelerometers, GPS)
  - Dynamics
  - EMG
  - Isokinetics 1
    - Peak torque values for specific joints
    - Torque-angle relationship for specific joints
    - Concentric-concentric strength ratios
    - Eccentric-concentric strength ratios
- Muscle stiffness and isokinetics
- Physiological testing
  - Oxygen consumption, gas exchange

o analiza srčnega pulza
    o analiza krvi
• Gibalni testi za posebne skupine:
    o Moč
    o Gibljivost
    o Vzdržljivost
    o Ravnotežje
    o Koordinacija
    o Funkcionalni testi
• Vprašalniki za oceno funkcionalnega stanja
• Ocena psihosocialnega statusa
• Izdelava poročila meritev
 	
Izbirno
• Analiza hoje s predstavitvijo rezultatov
• Analiza napora s predstavitvijo rezultatov
• Izokinetika II – meritve in predstavitev rezultatov
• Analiza socialnega statusa s predstavitvijo rezultatov
	o Heart rate analysis
	    o Blood analysis
	• Field tests for special populations:
	    o Strength and power
	    o Flexibility
	    o Endurance
	    o Balance
	    o Coordination
	    o Functional tests
	• Questionnaires for evaluation of functional status
	• Psycho-social evaluation
	• Analysis report preparation
	
	Elective
	• Gait analysis with data presentation
	• Effort analysis with data presentation
	• Isokinetics 2 – measurements and data presentation
	Social status analysis with data presentation
	
	    o

Temeljni literatura in viri / Readings:

Hong, Y., Bartlett, R.: Routledge handbook of biomechanics and human movement science. Taylor & Francis. Oxon. 2008

Nellessen, G.: Leistungsdiagnostik und Leistungsprognostik – zentrale Elemente der sozial-medizinischen Begutachtung. Mensch & Buch Verlag. Berlin. 2002

Walliman, N.: Social research methods. SAGE. London. 2006

Cilji in kompetence:

Cilji:
Namen modula je študente seznaniti z merilnimi postopki in ocenjevanjem stanja oseb s posebnimi potrebami. Študenti bodo spoznali bistvene značilnosti meritev za oceno bio-psiho-socialnega statusa v povezavi z vadbo in telesno aktivnostjo oseb s posebnimi potrebami. Izbirni del je namenjen poglabljanju posameznih metod.

Predmetno specifične kompetence:

*   Študenti poznajo vsebino meritev oziroma ključnih parametrov meritev za oceno bio-psiho-socialnega statusa oseb s posebnimi potrebami
*   Študenti poznajo bistvene značilnosti izvajanja meritev za oceno bio-psiho-socialnega statusa oseb s posebnimi potrebami
*   Študenti so sposobni iz meritev pridobiti bistvene informacije

Študenti so sposobni predstaviti rezultate meritev

Objectives and competences:

Goals:
Aim of the subject is to introduce measurement procedures and consecutive analysis of the specific groups of persons as follows from the study program. Students will learn the most important measurements for evaluation of bio-psycho-social status related to the exercise of specific groups of persons. Selective part is aimed to provide deeper insight into chosen method.

Subject specific competencies:
*   Students know the contents and the most significant parameters of the measurements for evaluation of bio-psycho-social status related to the exercise of specific groups of persons.
*   Students know the most significant characteristics of testing procedures for evaluation of bio-psycho-social status related to the exercise of specific groups of persons.
*   Students are able to obtain significant information from the testing.

Students are able to present testing results.

Predvideni študijski rezultati:

Znanje in razumevanje:

Poznavanje in razumevanje temeljnih merilnih postopkov v okviru posameznih merilnih metod ter interpretacije ključnih parametrov.

Samostojna analiza in interpretacija ključnih rezultatov meritev ter njihova predstavitev.

Intended learning outcomes:

Knowledge and understanding:

Knowing and understanding basic testing procedures inside the specific measuring methods and interpretation of the most significant parameters.

Independent analysis and interpretation of the

Uporaba znanj v praksi in njihovo razumevanje.

Boljše razumevanje teorije, ki je zasnovana na specifičnih merskih postopkih. Lažje razumevanje znanstvene literature, zlasti metod dela. | most significant results and their presentation.

Understanding and practical application of the knowledge.

Better understanding of the theory based on specific measurements. Better understanding of scientific literature, especially the methodical part. |

Metode poučevanja in učenja:

Learning and teaching methods:

Predavanja, laboratorijske vaje, panel, seminar	Lectures, laboratory exercises, panel, seminar

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Ocenjevanje vključuje delne izpite po posameznih vsebinskih sklopih in zaključno seminarsko nalogo pri izbirni vsebini. Delni izpiti so lahko ustni ali pisni. Ocenjevalna lestvica: od 1 do 5 negativno in od 6 do 10 pozitivno. Skupna ocena modula se izračuna iz delnih ocen pri posameznih vsebinskih sklopih. Za pozitivno oceno morajo biti ocene vseh vsebinskih sklopov pozitivne.
Seminarsko nalogo je mogoče oddati ko so vseh vsebinskih sklopov pozitivne.
Za vpis zaključne ocene mora biti seminarska naloga ocenjena z oceno opravil.		Assessment includes partial exams related to specific contents and final seminary work about the elective contents. Partial exams may be oral or written. Marks from 1 to 5 for negative evaluation and from 6 to 10 for positive evaluation. The subject's (final) mark is composed as an average from all partial exams where each partial exam should be positive.
Seminary work may be issued for evaluation when all partial exams are positive.
Students get the subject's credits when the seminary work is evaluated positively.

Reference nosilca / Lecturer's references:

DOLENEC, Aleš, ŠKOF, Branko. The impact of fatigue on chosen kinematic parameters of running. *Acta Univ. Carol., Kinanthropol.*, 2009, vol. 45, no. 1, str. 41-45, ilustr. [COBISS.SI-ID 3660209]

DOLENEC, Aleš, ČOH, Milan. Comparison of photocell and optojump measurements of maximum running velocity = Primerjava fotoceličnih in optojump meritev maksimalne tekaške hitrosti.

Kinesiol. Slov. (Print). [Print ed.], 2009, vol. 15, no. 2, str. 16-24, tabela, graf. prikazi. [COBISS.SI-ID 3713969]

AVOGADRO, Patrick, DOLENEC, Aleš, BELLI, Alain. Changes in mechanical work during severe exhausting running. *Eur. j. appl. physiol. (Print)*. [Print ed.], 2003, vol. 90, str. 165-170, graf. prikazi. [COBISS.SI-ID 2435505]

AVOGADRO, Patrick, DOLENEC, Aleš, KYRÖLÄINEN, Heikki, BELLI, Alain. Effect of 5% body weight forward pulling on dynamics of treadmill running. *European journal of sport science*, dec. 2003, vol. 3, issue 5, str. 1-9, ilustr., graf. prikazi. http://web.ebscohost.com/ehost/detail/vid=3&hid=8&sid=b2e25b8e-cb9a-4e80-9004-6edabdc0fd78%40SRCSM2, doi: 10.1080/17461390300073503. [COBISS.SI-ID 3292849]

DOLENEC, Aleš, ŠKOF, Branko. EMG activity change dynamics during a 3-km run. *J. sports sci.*. [Print ed.], 2000, vol. 18, no. 7, str. 470-471. [COBISS.SI-ID 708529]

DOLENEC, Aleš, STROJNIK, Vojko, ŠKOF, Branko. Relationship between fatigue changes in running kinematics and duration of contact phase. V: KOSKOLOU, Maria (ur.), GELADAS, Nickos (ur.), KLISSOURAS, Vassilis (ur.). 7th Annual Congress of the European College of Sport Science, Athens, 24-28 July, 2002. *Proceedings*. Athens: European College of Sport Science, 2002, vol. 2, str. 702 (O782). [COBISS.SI-ID 1620401]