	UČNI NAČRT PREDMETA/COURSE SYLLABUS
Predmet	**Fiziologija v športu**
Course title	**Physiology in Sport**

Študijski program in stopnja Study programme and level	**Študijska smer Study field**	**Letnik Academic year**	**Semester Semester**
Fizioterapija / 1. stopnja	Ni smeri študija	3. letnik	6.
Physiotherapy / 1st Cycle	No study field	3rd year	6th

Vrsta predmeta/Course type	modularni/module
Univerzitetna koda predmeta/University course code	FTH 3 M5 UN 1

Predavanja Lectures	**Sem. vaje Tutorial**	**Kab. vaje Cabinet tutorial**	**Lab. vaje Laboratory work**	**Teren. vaje Field work**	**Samost. delo Individ. work**	**ECTS**
45		30			75	5

Nosilec predmeta/Lecturer:	Luka Sumrak, pred.

Jeziki/ Languages:	**Predavanja/Lectures:**	slovenski/Slovenian
	Vaje/Tutorial:	slovenski/Slovenian

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Vpis v tretji letnik študijskega programa.	A prerequisite for inclusion is enrolment in the third year of study.

Vsebina:	**Content (Syllabus outline):**
• *Biomehanično ocenjevanje.* - Funkcionalna anatomija sklepov in mišično-kitnih enot. - Lastnosti kosti, kit, ligamentov, sklepnega hrustanca in mišic. - Analiza človekovega gibanja, osnove kinematike in kinetike. - Biomehanična analiza posameznih športov. - Principi telesne morfologije. • *Telesna adaptacija na vadbo.* - Energetski sistemi pri vadbi.	• *Biomechanical assessment.* - Functional anatomy of joints and musculotendinous units. - Characteristics of bones, tendons, ligaments, articular cartilage and muscles. - Human movement analysis – basic kinematics and kinetics. - Biomechanical analysis of individual sports. - Principles of body morphology. • *Body adaptation to exercise.*

- Bazalni metabolizem pri vadbi. - Kardiovaskularna adaptacija na vadbo. - Celični metabolizem in biomehanične poti energetske proizvodnje. - Telesni energetski prenosi med vadbo. - Nevromuskulatorna adaptacija na vadbo. - Principi treningov. • *Prehrana in vadba.* - Makrohranila in energija. - Mikrohranila. - Pomen hidracije. - Principi izkoriščanja hranil med vadbo: ogljikovih hidratov, maščob in beljakovin. - Telesno ocenjevanje: indeks telesne teže. • *Zdravila v športu.* - Vpliv farmacevtskih učinkovin na telesno pripravljenost. - Doping regulativa s strani avtoritet IOC in WADA. - Terapevtska uporaba zdravil pri boleznih in poškodbah. - Nesteroidne protivnetne učinkovine oz. NSAIDs (non-steroidal anti-inflammatory drugs).	- Energy systems in exercise. - Basal metabolic rates. - Cardiovascular adaptation to exercise. - Cellular metabolism and biomechanical pathways of energy production. - Human energy transfer system during exercise. - Neuromuscular response to exercise. - Principles of training. • *Nutrition and exercise.* - Macronutrients and energy. - Micronutrients. - The importance of hydration. - Principles of substrate utilisation during exercise: carbohydrates, lipid and protein utilisation. - Body composition: body mass index. • *Drugs in sport.* - Effects of various pharmaceutical agents on the exercise performance. - Doping regulations by IOC and WADA authorities. - Therapeutic use of drugs for illness and injuries. - Non-steroidal anti-inflammatory drugs.

Temeljna literatura in viri/Readings:

Temeljna literatura/Basic literature

- Lasan, M. (2004). *Fiziologija športa: Harmonija med delovanjem in mirovanjem.* Ljubljana: Fakulteta za šport, Inštitut za šport.
- McArdle, W. D., Katch, F. I., Katch, W. L. (2016) Essentials of Exercise physiology. Philadelphia. Wolters Kluwer.
- Lasan, M. (2002). *Stalnost je določila spremembo – Fiziologija.* Ljubljana: Fakulteta za šport, Inštitut za šport.

Priporočljiva literatura/Recommended literature

- Brooks, G. A., Fahey, T. D. in Baldwin, K. M. (2005). *Exercise physiology: Human bioenergetics and its applications.* Boston: McGraw-Hill.
- Satu, M.S. (1996). *Pharmacology in exercise and sport*. Florida: CRC Press: Boca Raton.

- Sevšek, F. (2004). *Biomehanika.* Ljubljana: Univerza v Ljubljani. Visoka šola za zdravstvo
- Stewens, A., Sutton, L. (2012). *Body composition in sport., exercise and health.* New York: Abingdon (Oxon).

Cilji in kompetence:	**Objectives and competences:**
Cilj predmeta je, da študent pridobi teoretično in praktično znanje o človeških biomehanskih karakteristikah in vplivu vadbe na telesne spremembe. *Pridobi tudi znanje o vplivu prehrane na vadbo in telesne spremembe in varno ter smiselno uporabo zdravil.* *Učna enota prispeva predvsem k razvoju naslednjih splošnih in specifičnih kompetenc:* • uporabo teoretičnega in praktičnega znanja iz področja: - biomehanike, kot osnova za omejitve oz. specifično prilagojene programe obravnave športnika, - osnovnih lastnosti telesnih energetskih sistemov in adaptacije telesa na vadbo, - makro in mikro-hranil ter hidracija, - osnove biomehanskih značilnosti posameznih športov, - osnove farmakoloških učinkovin, • avtonomnost pri strokovnem delu in sprejemanju samostojnih odločitev pri omejevanju športnih aktivnosti, • presojanje kakovosti lastnega dela z uporabo zanke kakovosti – nenehno preverjanje smotrnosti odločitev, • samostojno in odgovorno vseživljenjsko učenje na svojem strokovnem področju, upoštevanje novih znanj in tehnik pri zagotavljanju učinkovitega preventivno-rehabilitacijskega programa, • analizo telesnega gibanja z vidika funkcionalnih sposobnosti lokomotornega sistema, ergonomije in rehabilitacije.	*The objective of the course is that the student acquires theoretical and practical knowledge about the human biomechanical characteristics and the impact of exercise on body modification.* *They also acquire knowledge on the impact of nutrition on exercise and physical changes and safe and sensible use of medications.* *The learning unit mainly contributes to the development of the following general and specific competences:* • use of theoretical and practical knowledge in the field of: - biomechanics, as a basis for restrictions or specific personalized programmes of treating the athlete, - basic properties of the body's energy systems and adaptation of the body to exercise, - macro and micro nutrition and hydration, - basic biomechanical characteristics of individual sports. - basic information on pharmacological substances, • autonomy in professional work and decision making in restriction of sports activities, • evaluating personal work quality by using the quality loop – constantly checking the rationality of decision, • independent and responsible lifelong learning in one's own professional field, consideration of new skills and techniques in providing effective preventive-rehabilitation exercise programme, • analysis of body movement from the perspective of functional abilities of the

	locomotor system, ergonomics and rehabilitation.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Študent/študentka: • pozna teoretična in praktična znanja stopnje telesne pripravljenosti in osnovne značilnosti delovanja telesnega metabolizma in uporabe zdravil, • razume rezultate posameznih testov telesne pripravljenosti in se zna do njih kritično opredeliti, • glede na rezultate testov se opredeli do stališča glede nadaljevanja telesne aktivnosti in možnosti postopne in varne vadbe v smeri doseganja višjega nivoja telesne pripravljenosti, • organizira rehabilitacijski proces, • svoja stališča zna argumentirati znotraj tima.	***Students:*** • possess theoretical and practical knowledge on the level of physical fitness and know the basic characteristics of the body's metabolism and use of medications, • understand the results of individual tests of physical fitness and are able to critically interpret them, • according to the results of the tests, they define their position towards the continuation of physical activity and possibilities for progressive and safe exercise for achieving a higher level of physical fitness, • organise the rehabilitation process, • can define their views within the team.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• *predavanja* z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov), • *kabinetne vaje:* demonstracija, metoda praktičnih del, delo v parih, študije primera, razgovor, diskusija, simulacija.	• *lectures* with active student participation (explanation, discussion, questions, examples, problem solving); • *cabinet tutorial:* demonstration, method of practical work, work in pairs, case studies, conversation, discussion, simulation.

Načini ocenjevanja:	Delež (v %) Weight (in %)	**Assessment:**
Načini: • izpit • kolokvij Ocenjevalna lestvica: ECTS.	 80 % 20 %	Types: • exam • preliminary exam Grading scheme: ECTS.