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| | UCNI NACRT PREDMETA/COURSE SYLLABUS |
| Predmet | Ergonomija |
| Course title | Ergonomics |

| Študijski program in stopnja Study programme and level | Študijska smer Study field | Letnik Academic year | Semester Semester |
|-------------------------------------------------------------------------|---------------------------------------------|---------------------------------------|------------------------------------|
| Fizioterapija / I. stopnja | Ni smeri študija | 2. letnik | 3. |
| Physiotherapy / 1 st Cycle | No study field | 2 nd year | 3 rd |

Vrsta predmeta/Course type obvezni/obligatory

Univerzitetna koda predmeta/University course code FTH 2 UN 5

| Predavanja Lectures | Sem. vaje Tutorial | Kab. vaje Cabinet tutorial | Lab. vaje Laboratory work | Teren. vaje Field work | Samost. delo Individ. work | ECTS |
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| 30 | 15 | | | | 45 | 3 |

Nosilec predmeta/Lecturer:

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

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

| Vsebina: | Content (Syllabus outline): |
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| <ul style="list-style-type: none"> • <i>Uvod v ergonomijo.</i> Definicije. Zgodovina ergonomije. • <i>Načela ergonomije.</i> Nevtralni položaj telesa, zmanjševanje uporabe mišične sile, lahka dosegljivost, primerna višina opravljanja dela, zmanjševanje števila ponavljajočih se gibov, zmanjševanje statičnega mišičnega dela, zmanjševanje točkovnega pritiska na telo, zadosten manevrski prostor, mišični počitek, udobno delovno okolje, razumljivost ukazov, zmanjševanje stresa. | <ul style="list-style-type: none"> • <i>Introduction to ergonomics.</i> Definitions. History of ergonomics. • <i>Principles of ergonomics.</i> Neutral position of the body, reduction in the use of muscular force, easy accessibility, adequate height for working, reduction in the number of recurring movements, reduction of the static muscle work, reduction of the point pressure on the body, sufficient room, muscle rest, comfortable work environment, |

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| <ul style="list-style-type: none"> • <i>Antropometrija</i>. Antropometrična tehnika, standardni statični antropološki parametri, telesne mase, somatotipija, dinamična antropometrija. • <i>Biomehanika</i>. Biomehanske osnove, mišična moč, mišična utrujenost, stoječi delovni položaj, priklonjena delovna drža in dviganje bremen, hoja, vzpenjanje, sedeči položaj, kretnje, komande. • <i>Bioenergetika</i>. Vnos in poraba energije, aerobna in anaerobna presnova, presnova in napor, merjenje presnove. • <i>Zaznavanje okolja</i>. Vid, sluh, ravnotežje. • <i>Ergonomska tehnika</i>. Metode za proučevanja ergonomske drže telesa pri delu, RULA, OWAS, ergonomsko oblikovanje delovnih mest. | <p>intelligibility of commands, reduction of stress.</p> <ul style="list-style-type: none"> • <i>Anthropometry</i>. Anthropometric technique, standard static anthropological parameters, body masses, somatotyping, dynamic anthropometry. • <i>Biomechanics</i>. Biomechanical basics, muscular strength, muscular fatigue, standing work position, curved work posture and lifting loads, walking, climbing, sedentary position, gestures, controls. • <i>Bioenergetics</i>. Intake and consumption of energy, aerobic and anaerobic metabolism, metabolism and effort, measuring metabolism. • <i>Detection of the environment</i>. Vision, hearing, balance. • <i>Ergonomic technique</i>. Methods for studying the ergonomic body position at work, RULA, OWAS, ergonomic workplace design. |
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Temeljna literatura in viri/Readings:

Temeljna literatura/Basic literature

- Balantič, Z., Polajnar, A. in Jevšnik, S. (2016). *Ergonomija v teoriji in praksi*. Ljubljana: NIJZ.
- Kermavar, T. in Dodič-Fikfak, M. (2013). *Oblikovanje po meri človeka, ilustrirani učbenik iz ergonomije, 1. del*. Ljubljana: UKC, Klinični inštitut za medicino dela, prometa in športa.
- Sušnik, J. (1992). *Ergonomska fiziologija*. Radovljica: Didakta.

Priporočljiva literatura/Recommended literature

- Sušnik, J. (1987) *Položaj in gibanje telesa pri delu*. Ljubljana: Univerzitetni zavod za zdravstveno in socialno varstvo.

Cilji in kompetence:

Učna enota prispeva predvsem k razvoju naslednjih splošnih in specifičnih kompetenc:

- uporabo teoretičnega in praktičnega znanja pri organizaciji, načrtovanju in izvajanju dela,
- avtonomnost pri strokovnem delu in sprejemanju odločitev,
- zaznavanje potreb po spremembah v praksi, razvijanje in kritično uvajanje novih pristopov, ki temeljijo na z dokazi podprti praksi,

Objectives and competences:

The learning unit mainly contributes to the development of the following general and specific competences:

- using theoretical and practical knowledge in organisation, planning and implementation of activities,
- autonomy in professional work and decision making,
- identifying needs for changes in practice, developing and critically introducing new approaches, based on the evidence-based practice,

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| <ul style="list-style-type: none"> • analizo pacientovih dnevnih aktivnosti z vidika funkcionalnih sposobnosti lokomotornega sistema, ergonomije in rehabilitacije, • ocenjevanje zdravstvenega stanja pacienta, določitev vrste in obsega funkcionalnih omejitev lokomotornega sistema, • prepoznavanje, spoštovanje, upoštevanje in vključevanje individualnih potreb pacientov v njihovo fizioterapevtsko obravnavo, promocijo zdravja, zdravstveno vzgojo ter ohranjanje in izboljševanje kakovosti življenja, • ustno in pisno komuniciranje s sodelavci in strokovnjaki drugih strok, • empatično komunikacijo v interakciji s pacienti pri terapevtski obravnavi. | <ul style="list-style-type: none"> • analysing patients' activities of daily living from the aspect of functional abilities of the locomotor system, ergonomy and rehabilitation, • evaluating the patients' health status, defining types and extent of functional limitations of the locomotor system, • recognising, respecting, considering and including the individual needs of patients into their physiotherapeutic treatment, promotion of health, health education and improving as well as maintaining the quality of life, • spoken and written communication with colleagues and other expertise professionals, • empathic communication in interaction with patients during the therapeutic treatment. |
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Predvideni študijski rezultati:

Študent/študentka:

- pozna načela ergonomije,
- se usposobi za izvajanje antropometričnih meritev,
- razume biomehanske osnove,
- zna opazovati različne telesne položaje in aktivnosti in vrednotiti njihov vpliv na telesne obremenitve,
- se zaveda pomembnosti ravnovesja med vnosom in porabo energije in pozna posledice neravnovesja,
- zna oceniti energetske porabe,
- pozna ergonomska priporočila zaznavanja okolja,
- se usposobi za kritično presojo semantike znakov in simbolov,
- zna uporabljati ergonomsko tehniko OWAS,
- zna prepoznati neergonomske položaje in gibe tako na delovnem mestu, kot v domačem okolju,
- zna na podlagi pogovora s pacienti presojati, če gre v konkretnih primerih za ergonomske probleme,
- se usposobi za dajanje enostavnih ergonomskih nasvetov pacientom.

Intended learning outcomes:

Students:

- know the principles of ergonomics,
- are qualified for performing anthropometric measurements,
- understand biomechanical bases,
- can observe various body positions and activities, and assess their impact on body load,
- are aware of the importance of balance between the input and the consumption of energy and know the consequences of the imbalance,
- can assess energy consumption,
- know ergonomic recommendations for environmental perception,
- are qualified for the critical assessment of the semantics of signs and symbols,
- can use the OWAS ergonomic technique,
- can recognise the irregular positions and movements both at the workplace and in the home environment,
- upon the discussion with patients, they are able to assess if the concrete cases are dealing with ergonomic problems,
- are qualified for giving simple ergonomic advice to patients.

Metode poučevanja in učenja:

- *predavanja* z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov),
- *seminarske vaje*: priprava, predstavitev in uspešen zagovor projektne/raziskovalne naloge, portfolio (reševanje problemov, študije primera, kritično presojanje, diskusija, refleksija izkušenj, vrednotenje, projektno delo, timsko delo).

Learning and teaching methods:

- *lectures* with active student participation (explanation, discussion, questions, examples, problem solving),
- *tutorial*: preparation, presentation and a successful defence of a project paper, portfolio (problem solving, case studies, methods of critical thinking, discussion, reflection of experience, evaluation, project work, team work).

Načini ocenjevanja:

- Načini:
- izpit
 - izdelava, predstavitev in zagovor projektne/raziskovalne naloge

Ocenjevalna lestvica: ECTS.

Delež (v %)

Weight (in %)

80 %

20 %

Assessment:

Types:

- exam
- preparation, presentation and defence of the project/research paper

Grading scheme: ECTS.