Univerza v Mariboru
Medicinska fakulteta

UČNI NAČRT PREDMETA / SUBJECT SPECIFICATION	
Predmet:	**Osnove medicinske tehnologije**
Subject Title:	**Basics of Medical Technology**

Študijski program in stopnja Study programme and cycle	Študijska smer Study option	Letnik Year of study	Semester Semester
Dentalna medicina/Dental Medicine 2 stopnja/2nd cycle		**2, 6**	**3., 11.**

Vrsta predmeta / Course type Izbirni predmet/Elective

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje Clinical training	Druge oblike študija Other forms of study	Samost. delo Individual work	ECTS
5	**40**				**45**	**3**

Nosilec predmeta / Lecturer: **Red. prof. dr. Miljenko Križmarić**

Jeziki / Languages: **Predavanja / Lecture:** slovenščina/slovene
Vaje / Tutorial:

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

Prerequisits:

Vsebina:

Tehnologije v diagnostiki:
- Neinvazivni monitoring vitalnih funkcij (EKG, neinvazivni monitoring krvnega tlaka, pulzna oksimetrija, kapnometrija in kapnografija),
- Invazivno merjenje vitalnih funkcij (invazivno merjenje krvnega tlaka).

Tehnologije v terapiji:
- Distribucija medicinskih plinov (jeklenke, plinske instalacije),
- Sistemi za aplikacijo kisika (nosne kanile, enostavna maska za kisik, maska s povratnim dihanjem, maska z nepovratnim dihanjem, dihalni baloni - AMBU),
- Sistemi za infuzije (gravitacijski infuzijski sistemi, infuzijske črpalke)
- Defibrilatorji (AED in ročni zunanji defibrilatorji)
- Delovna postaja za inhalacijsko anestezijo (krožni dihalni sistemi, linearni dihalni sistemi Mapleson)
- Sistemi za aplikacijo dušikovega oksidula v zobnih ordinacijah,
- Elektrokirurgija (monopolarna, bipolarna, varnost),
- Kirurški instrumenti,

Content (Syllabus outline):

Technologies in diagnostic:
- Noninvasive monitoring of vital functions (ECG, Noninvasive blood pressure monitoring, Pulse oximetry, capnometry and capnography)
- Invasive measurement of vital functions (Invasive arterial blood pressure monitoring)

Technologies in therapy:
- Medical gas supply (cylinders, medical pipelines)
- Oxygen delivery systems (Nasal cannulae, Simple oxygen mask, Partial rebreather mask, Non-rebreather mask, Venturi masks, Manual resusctitator),
- Infusion systems (Standard IV giving sets, Infusion pumps),
- Defibrillators (AED and Manual external defibrillators),
- Anesthesia workstation (circle anesthesia systems, Mapleson breathing circuit),
- Dental nitrous oxide sedation systems in dental practise,
- Electrosurgery (monopolar, bipolar, safety in electrosurgery),
- Surgical instruments,

• Sterilizacija – kontrole in monitoring (Bowie-Dick test, monitoring šarže, monitoring paketa, monitoring opreme). • Laserji v dentalni medicini. • Ultrazvok v dentalni medicini. • Delovne postaje v zobozdravstvu.	• Sterilization control and monitoring (Bowie-Dick test, Load monitoring, Pack monitoring, Equipment monitoring). • Lasers in dental medicine. • Ultrasound in dental medicine. • Dentist Workstation.

Temeljna literatura in viri / Textbooks:

Obvezna literatura:

1. Aston D, Rivers A, Dharmadasa A. Equipment in Anaesthesia and Critical Care: A complete guide for the FRCA. Royal College of General Practitioners, 2013.

Dopolnilna literatura:

1. Kramme R, Hoffmann KP. & Pozos RS. Springer handbook of medical technology. Springer Science & Business Media, 2011.
2. Davey AJ, Diba A. Ward's anaesthetic equipment. 6 ed. London: WB Saunders, 2012.
3. Ehrenwerth J, Eisenkraft JB, Berry JM. Anesthesia Equipment: Principles and Applications. Saunders, Elsevier 2013.
4. Al-Shaikh B, Stacey S. Essentials of Anaesthetic Equipment. Churcill Livingstone, Elsevier 2013.

Cilji:	**Objectives:**
Študent bo pridobil bazično tehnično ozadje iz medicinskih pripomočkov, ki se dnevno uporabljajo v klinični praksi. Cilji študijskih vsebin so usmerjeni v spoznavanje aplikativne uporabe tehnologije v medicini.	The student will get it basic technical background of most of the equipment used in daily clinical practice. Objectives of study content are focused on application of technology in medicine.
Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Študent bo pridobil znanje iz področja uporabe tehnologije v medicini. Po zaključku tega predmeta bo študent: • Razumel in poznal področje medicinske tehnologije. Prenosljive/ključne spretnosti in drugi atributi: • Samostojno delo z osnovno tehnologijo • Uporaba različnih medicinskih pripomočkov	Knowledge and Understanding: Students will get familiar with the application of medical technology. On the completition of this course the student will: • Understand and be acquainted with the basics of medical technology. Transferable/Key Skills and other attributes: • Autonomous work with the medical technology • Use of different medical devices
Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja Seminarji	Lectures Seminars

Načini ocenjevanja:	**Delež (v %) / Weight (in %)**	**Assessment:**
Način (ustno izpraševanje, projekt) • Seminarska naloga	**100 %**	Type (oral examination, project): • Seminar paper

Reference nosilca / Lecturer's references:

1. MLINARIČ, Marko, MLINARIČ, Maša, KRIŽMARIĆ, Miljenko, TAKAČ, Iztok, REPŠE-FOKTER, Alenka. Effectiveness of artificial intelligence algorithms in identification of patients with high-grade histopathology after conisation. European journal of gynaecological oncology. [Online ed.]. June 2023, vol. 44, iss. 3, str. 1-10. ISSN 2709-0086. https://www.ejgo.net/articles/10.22514/ejgo.2023.050, DOI: 10.22514/ejgo.2023.050. [COBISS.SI-ID 159720963]
2. MLINARIČ, Marko, KRIŽMARIĆ, Miljenko, TAKAČ, Iztok, REPŠE-FOKTER, Alenka. Identification of women with high grade histopathology results after conisation by artificial neural networks. Radiology and oncology. [Print ed.]. 2022, vol. 56, iss. 3, str. 355-364, ilustr. ISSN 1318-2099. https://sciendo.com/article/10.2478/raon-2022-0023, DOI: 10.2478/raon-2022-0023. [COBISS.SI-ID 115112451]

3. KRIŽMARIĆ, Miljenko, MAVER, Uroš, ZDRAVKOVIĆ, Marko, MEKIŠ, Dušan. Effects of the reservoir bag disconnection on inspired gases during general anesthesia : a simulator-based study. BMC anesthesiology. 2021, vol. 21, str. 1-9, ilustr. ISSN 1471-2253. https://bmcanesthesiol.biomedcentral.com/track/pdf/10.1186/s12871-021-01256-2.pdf, DOI: 10.1186/s12871-021-01256-2. [COBISS.SI-ID 50343171]
4. FRANIĆ, Damir, FISTONIĆ, Ivan, FRANIC IVANISEVIC, Maja, PERDIJA, Željko, KRIŽMARIĆ, Miljenko. Pixel CO2 laser for the treatment of stress urinary incontinence : a prospective observational multicenter study. Lasers in surgery and medicine. 2021, vol. 53, issue 4, str. 514-520. ISSN 1096-9101. https://onlinelibrary.wiley.com/doi/10.1002/lsm.23319, DOI: 10.1002/lsm.23319. [COBISS.SI-ID 28354307]