2025/2026

Univerza v Mariboru

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Dentalni materiali**
Course title:	**Dental Materials**

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		**3**	**5.**

Vrsta predmeta / Course type	Obvezni/ Compulsory
Univerzitetna koda predmeta / University course code:	

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje Clinical training	Druge oblike študija Other forms of study	Samost. delo Individual work	ECTS
30	**15**				**45**	**3**

Nosilec predmeta / Lecturer:	**red. prof. dr. Zoran Kovač**

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

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Opravljeni kolokviji so pogoj za zaključni izpit.	All passed midterm exams are a condition for leaving the final exam.

Vsebina:	**Content (Syllabus outline):**
Predmet vključuje zgodovinski pregled zobnih materialov, njihovo standardizacijo, strukturo in lastnosti materiala. Zajema tudi uporabno metalografijo, pojem strukture metala in odvisnosti lastnosti od tipa strukture. Analizira strukturo izoliranih atomov, lastnosti in značilnosti v zvezi z atomsko strukturo in povezav med njimi (ionska, polarna, metalna, kovalentna). Predmet vključuje: mikrostrukturo, mehanske, fizikalne, tehnološke, reološke, kemijske in biološke lastnosti zobozdravstvenih materialov, zlitine za fiksne in snemne proteze, ortodontske žične keramične materiale, polimere in polimerizacijo, akrile, cemente, odtisne materiale, modelne in matrične materiale, voske materiali za termoplastike, paste za funkcionalne odtise, investicijske materiale, laboratorijske materiale za končne postopke in poliranje, smolni kompozitni materiali, emajl-dentinski lepilni sistemi, belilni materiali, materiali, ki pokrivajo celulozo, endodontski materiali, zobni amalgami, materiali v ustni, maksilofacialni kirurgiji v paradontologiji, biokompatibilnosti, vzorčenju in metodah za identifikacijo vgrajene zlitine, analizah kemijske stabilnosti in dokazu alergije.	The course will include historical overview of the materials used in dental medicine, their standardization, structure and properties. It will also include applied metallography, metallic structure and its dependence upon the type of structure. It will go through the structure of isolated atom, properties and particulars of structure as well as bonds between them (ionic, polar, metallic, and covalent). Course includes: microstructure, mechanical, physical, technological, rheological, chemical and biological properties of dental materials, alloys for fixed and removable prostheses, orthodontics wires ceramic materials, polymers and polymerisation, acrylics, cements, impression materials, model and die materials, waxes, thermoplastic baseplates materials, pastes for functional impressions, investment materials, laboratory materials for final procedures and polishing, resin composites materials, enamel-dentin adhesives systems, bleaching materials, pulp covering materials, endodontics materials, dental amalgams, materials in oral, maxillofacial surgery and in parodontology, biocompatibility, sampling and methods for identification of incorporated alloy, analyses of chemical stability and proof of allergy.

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Temeljni literatura in viri / Readings:

1. Powers J, Wataha J. Dental Materials 11th Edition Mosby,2017.

Cilji in kompetence:

Namen predmeta je predstaviti osnovne mehanske, fizikalne, kemijske in biološke lastnosti materiala v zobozdravstvu, kar je predpogoj za pravilno ravnanje in uporabo materialov v zobozdravstvu. Hkrati je treba poznati značilnosti materialov in način odzivanja na določen material ter razloge za dosledno upoštevanje navodil za uporabo in njihovo uporabo. Predmet materiala v zobozdravstvu vključuje materiale, uporabljene v mehanskih postopkih v zobni protetiki (zobne proteze, krone, mostove itd.) in zobni patologiji (polnjenje itd.) ter v določeni meri vključuje tudi nekatere materiale v ortodontiki, otroški dentalni medicini, oralni in maksilofacialni kirurgiji.
Program spodbuja sposobnost analiziranja in izbire najboljšega materiala za vsako tehnološko in klinično nalogo.

Objectives and competences:

The aim of the course is to present basic mechanical, physical, chemical and biological properties of the materials used in dental medicine, which is a prerequisite for correct use and application of materials in dento-medical practice. In addition, students will be taught on properties and reactions of certain materials, as well as reasons for adhering to the instructions for use and handling. The course will encompass the materials used in mechanical procedures in dental prosthetics (dentures, crowns, bridges, etc.) and dental pathology (fillings and other), and to some extent materials some materials used in orthodontics, pediatric dentistry, oral and maxilla-facial surgery.

Predvideni študijski rezultati:

Intended learning outcomes:

Znanje in razumevanje:
Ta program spodbuja sposobnost analiziranja in izbire najboljšega materiala za vsako tehnološko in klinično nalogo.

Knowledge and understanding:
This course will prompt the students to analyse and choose the best material for every technological and clinical task.

Metode poučevanja in učenja:

Predavanja
Seminarji

Learning and teaching methods:

Lectures
Seminars

Načini ocenjevanja:	**Delež (v %) / Weight (in %)**	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt)		Type (examination, oral, coursework, project):
Zaključni izpit je:		The final exam consists of the:
- pisni izpit in	70 %	- written exam and
- ustni izpit.	30 %	- oral exam.
OPOMBE Študenti imajo v okviru predmeta dva kolokvija. Opravljeni kolokviji so pogoj za zaključni izpit.		NOTES Students during the course have two midterm exam. All passed midterm exams are a condition for leaving the final exam.

Reference nosilca / Lecturer's references:

Fetai A, Debeljak V, Kovačević Pavičić D, Ivančić Jokić N, Negovetić Vranić D, **Kovač Z**, Komar D, Verzak Ž. Self-Massage and Low-Level Laser in Treatment of Masseter Myalgia: Short-Term Effect. Psychiatr Danub 2021;33:63-70.
Kinkela Devcic M, Simonic-Kocijan S, Prpic J, Paskovic I, Cabov T, **Kovac Z**, Glazar I. Oral Candidal Colonization in Patients with Different Prosthetic Appliances. J Fungi . 2021;7(8):662

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Ćabov T, Eljuga K, Fuchs Nola P, Devcic Kinkela M, Prpic J, **Kovac Z**, Puharić Z, Glazar I, Zulec M. Oral Health Knowledge, Attitude, and Behavior of Nursing and Technical Students in Croatia. Eur J Dent. Eur J Dent 2022;16(1):102-108.
Baressi Šegota S, Lorencin I, **Kovač Z**, Car Z. On approximating the pIC50 value of COVID-19 medicines in silico with artificial neural networks. Biomedicines 2023;11(2):284.
Kovac Z, Cabov T, Blaskovic M, Morelato L. Regeneration of Horizontal Bone Defect in Edentulous Maxilla Using the Allogenic Bone-Plate Shell Technique and a Composite Bone Graft. Medicina (Lithuania) 2023;59(3):494
Zulijani A, Milardovic A, **Kovac Z**, Peric B, Jakovac H. Megalin Expression in Primary Oral Squamous Cell Carcinoma Is Associated with the Presence of Lymph Node Metastases, Vascular Invasion, and Lower Overall Survival. Curr Issues Mol Biol 2023;45(4):2757-66.