DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES AT VILNIUS UNIVERSITY

Scientific Area, Field of Science	Medical and Health Sciences (M 000): Odontology (M 002)			
Faculty, Institute, Department/Clinic	Faculty of Medicine Institute of Odontology			
Course unit title (ECTS credits, hours)	**Teeth- and implant- supported fixed and removable prosthodontics** 7 credits (186 hours)			
Study method	**Lectures**	**Seminars**	**Consultations**	**Self-study**
ECTS credits	-	-	0,5	6,5
Method of the assessment (in 10 point system)	Presentation evaluation. Presentation topic should be discussed and decided with the lecturer coordinating the unit. Student should review, analyze, and present the newest research findings that are related to the topic. The following aspects are evaluated: - Structure of the presentation, comprehensiveness, and quality of the material (2 points); - Clear presentation of knowledge, argumentation, critical thinking (2 points); - Conclusions and limitations (2 points); - Clinical recommendations, evidence-based statements (2 points); - Discussion, ability to answer questions (2 points). Minimal passing score – 5.			

PURPOSE OF THE COURSE UNIT

Dental implantation as well as teeth- and implant-supported fixed and removable prosthodontics include complex procedures where different dental and medical specialties need close collaboration. The aim of this course is to acquaint the student with the etiology, diagnostics and treatment peculiarities when partially or fully edentulous arches are treated with teeth- and/or implant-supported fixed and removable prostheses.

THE MAIN TOPICS OF THE COURSE UNIT

Primary and secondary adentia. Types of edentulism, etiology and how it influences diagnosis and treatment planning. Classifications: edentulism, alveolar ridge resorptions, post-extraction defects, gingival recessions, complete edentulism, pink esthetic scoring, quality and quantity of bone. Factors affecting the prognosis of teeth: periodontal, endodontic, prosthetic and other factors. Success criteria for the dental implants. Decision tree for leaving or extracting remaining tooth (teeth).

Patient examination principles, evaluation of local and general risk factors. Possible complications of teeth- and implant-supported prostheses. Indications and contraindications for dental implantation. Stages of the complex implant and prosthodontic rehabilitations.

Anatomy of stomatognathic system and its examination methods. Main positions of the mandible, border movements. Occlusal surface of teeth: shape and function. Types of occlusal contacts, contacts during eccentric mandible movements, maximum intercuspation. Diagnostic impressions and models: the purpose and fabrication methods. Construction principles of articulators and their

usage. Mounting of the diagnostic models into articulator, programming of articulator.

Radiologic evaluations before the dental implantation procedures. Computerized tomography. Biocompatibility of dental materials and biomechanics. Composition of ceramics, metal alloys and polymers. Mechanical properties. Physical and chemical properties of dental materials. Principles of adhesion. Impression materials, intraoral scanners. Materials used for dental model fabrication. 3D printing of dental models. Materials and fabrication methods for full ceramic prostheses. Effect of tooth preparation on the tooth prognosis. Biomechanics of fixed prosthodontics. Endodontically treated teeth as abutments. Gingival retraction. Conventional and digital impressions for fixed prosthodontics. Mandibular relations to the maxilla: centric relation, central occlusion, maximal intercuspation and their registrations. Temporary prostheses. Tooth shade determination. Laboratory steps for the fabrication of the fixed prostheses. Prosthesis try-in procedures. Full ceramic restorations on dental implants. Full-, partial-contour and fully layered prosthetic constructions. High-performance polymer's usage in implant prosthodontics. CAD/CAM and 3D printing technologies in dental implantology and prosthodontics.

Treatment planning for periodontally compromised patients and role of the prosthodontics. Prognosis of periodontally compromised teeth and its evaluation. Importance of number and distribution of the remaining teeth. Mobility of teeth. Occlusal trauma: etiology, pathogenesis, influence on the inflammatory process of periodontium, treatment. Types of dental splints: principles of action, indications, types. Biologic width. Clinical crown lengthening procedures.

Temporomandibular disorders (TMD), overview. Masticatory muscle disorders: etiology, pathogenesis, diagnostics, and treatment principles. Temporomandibular joint (TMJ) intracapsular disorders: etiology, pathogenesis, diagnostics, and treatment principles. Differential diagnosis of TMD. Types of occlusal devices. Bruxism: etiology, pathogenesis, diagnostics, and coping strategies. Excessive teeth wear: etiology, pathogenesis, diagnostics, and treatment principles.

Osseointegration and peri-implant soft tissue integration. Surgical guides. Bone and soft tissue augmentation procedures: materials, indications, complications. Types of dental implants and implant abutments. Biomechanics of dental implants. Fixed and removable dental implant-supported prostheses. Marginal bone loss around implants, etiology, and prevention. Dental implant treatment complications. Maintenance of dental implants. Peri-implantitis and peri-mucositis: etiology, diagnostics, treatment and prevention.

RECOMMENDED LITERATURE SOURCES

1. Contemporary Fixed Prosthodontics, 5th Edition. Editors : Stephen F. Rosenstiel & Martin F. Land ISBN : 9780323720892
2. Prosthetic Treatment of the Edentulous Patient, 5th Edition
3. R. M. Basker, J. C. Davenport, J. M. Thomason. ISBN: 978-1-405-19261-3 April 2011 Wiley-Blackwell
4. Full-Arch Implant Rehabilitation. Garg, Arun. 2019. Quintessence publishing. ISBN: 978-0-86715-809-0; 9780867158090
5. Klinikinė odontologija. Sudarytoja I. Balčiūnienė. Vaistų žinios, 2008.
6. Dantų technologija: teorija ir praktika. Kauliniene Z., Mameniškis V. ir kt. Vaistų žinios, 2008.
7. Lindhe's Clinical Periodontology and Implant Dentistry, 2 Volume Set, 7th Edition. Niklaus P. Lang, Tord Berglundh, William V. Giannobile, Mariano Sanz. ISBN: 978-1-119-43888-5. 2021. Wiley-Blackwell
8. Zero Bone Loss Concepts. Linkevicius, Tomas. 2019. Quintessence publishing. ISBN: 978-0-86715-799-4

9. Misch's Contemporary Implant Dentistry. 4th Edition - January 25, 2020. Randolph Resnik. ISBN: 9780323391559
10. Fundamentals of Fixed Prosthodontics, Fourth Edition. Shillingburg, Herbert T., Jr.; Sather, David A.; Wilson, Edwin L., Jr.; Cain, Joseph R.; Mitchell, Donald L.; Blanco, Luis J.; and Kessler, James C. 2019. Quintessence publishing. ISBN: 978-0-86715-475-7; 9780867154757
11. Digital Workflow in Reconstructive Dentistry. Att, Wael; Witkowski, Siegbert; Strub, Jörg. 2019. Quintessence publishing. ISBN: 978-1-78698-025-0
12. DIGITAL DENTISTRY SCIENCE AND CLINICS El. Knyga - https://digital-dentistry.org/e-book-now-available/
13. Dental Implant Complications: Etiology, Prevention, and Treatment.
14. Stuart J. Froum. 2015. Wiley & Sons, Inc. ISBN:9781118976456
15. Vertical and Horizontal Ridge Augmentation New Perspectives. Urban, Istvan. 2017. Quintessence publishing. ISBN 978-1-78698-000-7

CONSULTING LECTURERS

1. Coordinating lecturer: Vygandas Rutkūnas (Prof. Dr.).
2. Tomas Linkevičius (Prof. Dr.).
3. Alina Pūrienė (Prof. Dr.).
4. Rita Trumpaitė-Vanagienė (Assist. Prof. Dr.).

APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University: 29th of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė