

**DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES
AT VILNIUS UNIVERSITY**

Scientific Area, Field of Science	Medical and Health Sciences (M 000): Odontology (M 002); Medicine (M 001)			
Faculty, Institute, Department/Clinic	Faculty of Medicine Institute of Odontology			
Course unit title (ECTS credits, hours)	Radiological Diagnosis of Diseases of the Maxillofacial Region 7 (186 hours)			
Study method	Lectures	Seminars	Consultations	Self-study
Number of ECTS credits	-	-	0,5	6,5
Method of the assessment (in 10 point system)	<p>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:</p> <ul style="list-style-type: none"> - 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). <p>Minimal passing score – 5.</p>			
PURPOSE OF THE COURSE UNIT				
To introduce with knowledge of diagnostic studies of radiographic, cone beam computed tomographic, computed tomographic, magnetic resonance imaging, ultrasound examinations and radiological diagnosis of diseases of the teeth and maxillofacial region.				
THE MAIN TOPICS OF THE COURSE UNIT				
<p>In modern dentistry, radiological examination is one of the most important diagnostic tools. This tool is especially often used in retrospective and prospective clinical trials.</p> <p>It is necessary for the doctor to know the radiographic methods and how to perform radiographs, assess their quality and interpret radiological appearance according to their order and importance. Terms used to describe radiological appearance: radiopaque, radiolucent and mixed. Differences in the absorption of X-rays of soft and hard tissues and differences in radiological appearance. Differences in radiological appearance of the upper and lower jaw. Radiological appearance of teeth and tissues of the tooth. Methods of intraoral radiography: periapical radiographs (paralleling technique and bisected angle technique), bitewing radiographs and technique, occlusal radiographs (topographic technique and bisected angle technique); methods of extraoral radiography: posterior-anterior, forehead-nose, reverse Towne, Nose-chin, sinus (Waters), half axial, axial, lateral head, lateral oblique jaw, chin, panoramic, functional TMJ radiographs. The importance of the selection of projections to perform radiograph for the assessment of anatomical areas, diagnosis of pathology and treatment planning. Cone beam computed tomography, computed tomography and they axial, coronal/frontal, sagittal panoramic, oblique, 3D reconstruction/images. Magnetic resonance imaging and ultrasound examination in the maxillofacial regions (neck, soft tissue of the mouth, salivary glands, temporomandibular joint).</p>				

Exposure of patient during the radiographic examination in dentistry and radiation protection. Dosimetry.

Indication and contraindication for radiographic examination in maxillofacial region and evaluation of radiological appearances.

Normal radiographic anatomy of teeth, jaws, facial bones and maxillofacial regions. Diagnostic of caries and features among children and adult patients. Assessment of marginal periodontium and periapical periodontium. Assessment of root morphology, various anatomical structures, root canal treatment and complications after root canal treatment. Importance of cone beam computed tomography in endodontic in: the treatment of traumatic lesions of the teeth, performing endodontic re-treatment procedures and for diagnosing vertical root fractures. Cone beam computed tomography in oral surgery, orthodontics, periodontology.

Inflammatory lesions of the jaws and maxillofacial regions: alveolitis, periostitis, osteomyelitis, sinusitis of odontogenic origin and others. Diagnostic of trauma (fractures) of jaws and facial bones. Diagnostic of cysts of the jaw odontogenic origin (radicular, residual, dentigerous and keratocyst), nonodontogenic origin and their differential diagnosis. Dysplasia of the jaws and other systemic diseases manifested in the jaws and their expression in radiographs. Benign tumors (odontoma, ameloblastoma, myxoma, giant cell granuloma, vascular tissue origin, nervous tissue origin and others) of maxillofacial region and their expression in radiographs. Diagnostics of malignant tumors (carcinoma, sarcoma, chondrosarcoma and others) of maxillofacial region and application of radiological diagnostic methods. Diagnostics of disorders of the temporomandibular joint and the tools are used in diagnostics. Examination methods and diagnosis of diseases of salivary gland and soft tissue of the neck. Radiological diagnostic of developmental abnormalities and eruption disorders of teeth. Radiological diagnostics and treatment planning of dysgnathia. Radiological diagnostics and treatment planning of developmental abnormalities of face, skull, disorders of facial growth. Principles of cephalometric analysis for the assessment of the relationship between skull, facial bones and teeth. Radiological diagnostic of foreign bodies in facial region. Radiographic interpretation of structure/pathology: localisation, size, form, border, relationship with surrounding tissues, internal structure/radiological appearance. Principles of differential diagnosis of structure/pathology in the jaws.

The importance of radiological examination for dental implantation, assessment of the condition of teeth and jaws, planning of treatment and follow up. Strategically important areas of dental arcs for implantation.

The importance of computed tomography, magnetic resonance imaging and ultrasound examination for oral and maxillofacial surgery.

Digital imaging in dentistry (sensors, phosphor plates, DICOM format, PACS system, computed imaging programs, photography and other).

RECOMMENDED LITERATURE SOURCES

1. White S.C, Pharoah M.J. Oral radiology. Principles and Interpretation. USA: Mosby. 2009. 1-657.
2. Whaites E. Essentials of dental radiography and Radiology. UK: Churchill Livingstone, 2007.
3. Dale A. Mile. Color Atlas of Cone Beam Volumetric Imaging for Dental Applications. 2009.
4. Patel S, Harvey S, Shemesh H, Durack C. Cone Beam Computed Tomography in Endodontics. UK: Quintessence Publishing. 2016, 1-308.
5. Radiation protection Issue Nr. 136. European guidelines on radiation protection in dental radiology. 2004, 1-116.
http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/136.pdf.
6. Horner K, Eaton K.A. Selection Criteria for Dental Radiography. UK: Faculty of General Dental Practice. 2013 (reprinted 2018), 1-130.

7. SEDENTEXCT project. Radiation Protection No 172: Cone Beam CT for Dental and Maxillofacial Radiology. Evidence based guidelines. 2011.
<http://www.sedentexct.eu/content/guidelines-cbct-dental-and-maxillofacialradiology>.
8. Baseckas M., Čepulis V., Grybauskas S., Ivanauskaitė D., Kaladytė-Lokominienė R., Linkevičienė L., Olekas J., Pavilionis S., Purlienė I., Rimkuvienė J., Rizgeliienė R., Šiliekis P., Vaičiūnas R., Zaleckas L. Veido, žandikaulių ir burnos chirurgija. Vilnius: Vaistų žinios, 2008. 710 p.
10. Jacobson A., Jacobson R.L., Radiographic Cephalometry: From Basics to 3-d imaging. Quintessence Publishing, 2006

CONSULTING LECTURERS

1. Coordinating lecturer: Deimantė Ivanauskaitė (Assist. Prof. Dr.).
2. Laura Linkevičienė (Prof. Dr.).
3. Saulius Drukteinis (Assoc. Prof. Dr.).
4. Linas Zaleckas (Assoc. Prof. Dr.).

APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University:
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Chairperson of the Board: Prof. Janina Tutkuvienė