

**Thematic plan of independent work of the student
in the discipline "Therapeutic Dentistry"
for students of the educational program
of the specialist degree in the specialty/direction of training
31.05.03 Dentistry, direction (profile) Dentistry,
form of study full-time, 4rd-Years Students (Term VII),
for the 2023-2024 academic year**

№	The topic of independent work	Hours (academic)
1	Endodontics. Etiology, pathogenesis, diagnose and treatment of pulpitis. Etiology, pathogenesis, diagnose and treatment of apical periodontitis¹	50
	<ul style="list-style-type: none"> • Structure and Functions of the Dentin-Pulp Complex. Pulp structure, cells, intercellular substance, fibers. Secondary dentin, reparative, sclerosed, transparent dentin, dentin liquid. Blood supply, innervations. Pulp stones.² • Local anesthesia for restorative dentistry and endodontics. Mechanism of toothache. Types of anesthesia in therapeutic dentistry/ Local injection anesthesia, medicines. Mistakes and complications of local injection anesthesia.² • Depophoresis of calcium copper hydroxide. The mechanism of action of copper-calcium hydroxide depophoresis. Indications for depophoresis. Contraindications to depophoresis. Technique.² • Pulpitis diagnostic techniques. Pulp Tests (Laser Doppler flowmetry (LDF). Features of the innervation of the dental pulp and periapical tissues. Principle of electroodontodiagnostics, Devices for electric pulp testing. Electric pulp testing of an intact tooth, with caries, pulpitis, apical periodontitis, periodontal diseases. Laser Doppler flowmetry and its use in dentistry.² • Pulp chamber anatomy and coronal access cavity preparations. Procedural Mishaps. Topography of the tooth cavity of the incisors and the canine of the upper jaw. Preparation of the access cavity, errors in the preparation of incisors and canines of the upper jaw. Topography of the tooth cavity of the incisors and the canine of the lower jaw. Preparation of the access cavity, errors in the preparation of the incisors and the canine of the lower jaw. Topography of the tooth cavity of the premolars of the upper jaw. Access cavity preparation, maxillary premolars preparation errors. Topography of the tooth cavity of the premolars of the lower jaw. Preparation of the access cavity, errors in the preparation of mandibular premolars. Topography of the tooth cavity of the molars of the upper jaw. Preparation of the access cavity, errors in the preparation of the molars of the upper jaw. Topography of the tooth cavity of the molars of the lower jaw. Access cavity preparation, mandibular molars preparation errors.² • Antimicrobial irrigating solutions and vital pulp therapy materials. Medicines used to treat pulpitis. Solutions for root canal irrigation, root canal irrigation, ultrasound irrigation, photoinitiated disinfection, endovak. Chemical preparation of root canals, preparations for unsealing root canals. Medicines used for medical treatment with a 	

<p>conservative method of treating pulpitis, medicines to stop bleeding. Therapeutic pads used for the treatment of pulpitis. Indications for therapeutic liners, classification, requirements for therapeutic liners, combined therapeutic pastes, calcium hydroxide liners, zinc-eugenol cements.²</p>	
<ul style="list-style-type: none"> • Techniques of obturation of the radicular space with gutta-percha. Composition and properties of gutta-percha, classification of techniques of gutta-percha obturation. Single Cone method. Method of lateral compaction of gutta-percha. Method of warm lateral compaction of gutta-percha. Obturation of the radicular space using an automatic plugger. Canal obturation with chemically plasticized cold gutta-percha. Vertical compaction of heated gutta-percha. Obturation with warm fragmented gutta-percha. Lateral-vertical compaction of heated gutta-percha. Thermomechanical sealing of gutta-percha. Obturation with thermoplastic injection of gutta-percha. Canal obturation using the Thermafil system, Gutacore, hybrid techniques method. Retreatment canals obturated with gutta-percha.² 	
<ul style="list-style-type: none"> • Radiography in endodontics. Intraoral radiographs (contact periapical radiography, interproximal radiography, occlusal radiography). Orthopantomogram. Cone beam computed tomography.² 	
<ul style="list-style-type: none"> • Microbiology in endodontics. Primary intracanal infection. Secondary intracanal infection. intracanal microbial biofilm. The concept of microbial biofilm. Endodontic biofilm. Extraradicular microbial biofilm. Periapical microbial biofilm.² 	
<ul style="list-style-type: none"> • The pathogenesis of apical periodontitis. Influence of foci of chronic infection on the body. Function of T-lymphocytes in periapical granuloma. B-lymphocytes, plasma cells and the production of immunoglobulins. IL-1 and macrophages in a periapical granuloma. Bacteria in periapical lesions. Bone resorption in periapical lesions. The effect of chronic infection on the body.² 	
<ul style="list-style-type: none"> • Radicular cyst. Etiology, pathogenesis. Clinic. Differential diagnosis and methods of treatment. Etiology, pathogenesis of radicular cyst. Pathological anatomy of a radicular cyst. True and pocket cysts. Clinic of a radicular cyst. Differential diagnosis of radicular cyst. Treatment.² 	
<ul style="list-style-type: none"> • Electronic apexlocators in endodontics. The concept of a apical constriction. Resistant root canal shape. Working length determination of the root canal. Methods of working length determination. Types of apex locators. Apex locators with EDI and dentometer functions.² 	
<ul style="list-style-type: none"> • Vertical root fractures and cracks in endodontically treated teeth. Definition of vertical root fractures. Causes and frequency of vertical root fractures in endodontically treated teeth. Clinic of vertical root fractures. Diagnostics ("bite test", radiography). Differential diagnosis. Prevention of vertical root fractures.² 	
<ul style="list-style-type: none"> • Cone beam computed tomography in endodontics. CT scan in dentistry. CT in Endodontics: Evaluation of Root Canal Morphology. Diagnostics of the pathology of periapical tissues. Diagnosis of root fractures. Root resorption. Diagnostics of perforations.² 	
<ul style="list-style-type: none"> • Lasers in endodontics. Classification of lasers. Neodymium laser. Erbium laser. Diode laser. The effect of laser radiation on microorganisms and dentin. Photodynamic therapy or light-activated 	

	therapy (LAT). ²	
	<ul style="list-style-type: none"> • Methods of magnification and illumination in endodontics. Concept of an operating microscope. The use of an operating microscope in diagnostics and endodontic treatment. Preparation of the microscope for work and its correct installation. Ergonomics of using an operating microscope. Magnification with dental loupes.² • Periradicular Surgery. Endodontic surgery (apicoectomy). Root apex resection. Operating microscope in endodontic surgery. Root apex closure materials. Ultrasonic tips for endodontic surgery. Root amputation. Hemisection. Corona-radicular separation.² 	
	Total	50

¹ -Subject

² - essential content (if necessary)

Considered at the meeting of the department of June 1, 2023, protocol No12

Head of the Department for Therapeutic
Dentistry, DSci, professor

I.V. Firsova

**Thematic plan of independent work of the student
in the discipline "Therapeutic Dentistry"
for students of the educational program
of the specialist degree in the specialty/direction of training
31.05.03 Dentistry, direction (profile) Dentistry,
form of study full-time, 4rd-Years Students (Term VIII),
for the 2023-2024 academic year**

№	The topic of independent work	Hours (academic)
1	Etiology, pathogenesis, diagnose and treatment of periodontal diseases. Relationship between periodontal disease and systemic diseases¹	52
	<ul style="list-style-type: none"> • Relationship between periodontal disease and the risk of preterm birth and low birth weight. The problem of low birth weight. Causes of preterm birth and low birth weight. Periodontitis and adverse outcome of childbirth. The importance of treating periodontitis in preventing preterm birth and low birth weight.² • Relationship between periodontal disease and atherosclerosis. A possible biological scenario for the development of a relationship between periodontitis and systemic diseases. Results of epidemiological studies. Significance of the problem for healthcare professionals and society.² • The use of the "Vector" system for the treatment of periodontal diseases. Principles of operation of the Vector system. Areas of use. Advantages of the Vector system for the treatment of periodontal diseases.² • Periodontal disease and diabetes mellitus. Etiology and pathogenesis of inflammatory periodontal diseases. Etiology and pathogenesis of diabetes mellitus. Manifestations in the oral cavity of periodontal diseases against the background of diabetes mellitus. Features of the treatment of periodontal diseases in patients with diabetes mellitus. Clinical examination of patients with periodontal disease on the background of diabetes mellitus.² • Guided tissue regeneration in periodontology. Question history. Repair and regeneration of periodontal tissues. Types of wound healing in periodontology. Guided tissue regeneration and guided bone regeneration (GRT and GBR). periodontal membranes. Membrane classification. Membrane requirements. Membrane functions. Non-resorbable membranes: advantages and disadvantages. NRT technique using non-resorbable membranes. Resorbable membranes: natural and synthetic. Methods of application of biomembranes. Comparative characteristics of collagen and polymer membranes. Synthetic biomembranes.² • Regenerative treatment using matrix proteins, growth and differentiation factors. Growth and differentiation factors: platelet growth factor, insulin-like growth factor, transforming growth factor β, bone morphogenetic proteins, fibroblast growth factor. Mediator systems certified for practical use: platelet rich plasma (PBT), P-15, enamel matrix protein (Emdogain (EM)). Enamel matrix protein flap 	

	<p>surgery. Regenerative treatment pros and cons.²</p> <ul style="list-style-type: none"> • Methods for removing supra- and subgingival dental deposits. Periodontal instruments. Instruments with electric drive for removal of supragingival dental deposits and their application. Manual instruments for the removal of supragingival dental plaque and their application. Hand tools for cleaning and polishing the root - curettes. Power tools. Use of curette Gracey. Hand instruments (curettes) for problem areas. Treatment with Gracey curettes, method. Tool sharpening.² • Study of body reactions and risk assessment. Recording a periodontal chart. Digital periodontal charts (Florida Probe system). Genetic risk: IL-1 gene polymorphism test. Poor hygiene as a risk factor, bleeding on probing. Drawing up an individual risk profile. Periodontal charts I and II. Electronic patient record.² • Microbiology of inflammatory periodontal diseases. Dental plaque: a biofilm associated with the "host" organism. Macroscopic structure and composition of plaque. Plaque formation. Microscopic structure and physiological properties of plaque. Association of dental plaque microorganisms with periodontal diseases. Specific microbes of periodontal disease. Microorganisms associated with specific periodontal diseases. Significance of biofilm medium.² • Lasers in periodontology. Photodynamic therapy. Laser curettage.² • Pathogenesis of inflammatory periodontal diseases. Body reactions: mechanisms and participants. Non-specific, innate immunity is the first line of defense. Specific, acquired immunity is the second line of defense. Interaction of nonspecific and specific immunities. Cytokines. Eicosanoids are prostaglandins and leukotrienes. enzymatic mechanisms. Action of matrix metalloproteinases. risk of developing periodontitis. The susceptibility of the macroorganism. Genetic risk factors. Modifiable risk factors. Destruction of connective tissue, destruction of bone tissue.² • Electromechanical instruments for the removal of mineralized dental deposits. Instruments with electric drive for removal of supragingival dental deposits and their application. Ultrasonic scalers. Sound scalers. Device Vector. Air abrasive system.² 	
	Total	52

¹ -Subject

² * - essential content (if necessary)

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Dentistry, DSci, professor



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