

PRIVATE HIGHER EDUCATIONAL INSTITUTION
"INTERNATIONAL ACADEMY OF ECOLOGY AND MEDICINE"
Department of Dentistry

SYLLABUS
EDUCATIONAL DISCIPLINE

«Propedeutics to therapeutic dentistry»


LEVEL OF HIGHER EDUCATION The second (master's) level

DEGREE OF HIGHER EDUCATION Master

FIELD OF KNOWLEDGE 22 Healthcare

SPECIALTY 221 Dentistry

COURSE 2

Considered and approved
at a meeting of the Department of Dentistry
Protocol № 1 from «01» 09 2020 p.
Acting head of the department _____
MD, prof.  Kuts P.V.

Kiev 2020

1. General information	
Subject	Propedeutics to therapeutic dentistry
Lector	Acting Head of the Department, Doctor of Medical Sciences, Professor, Kuts Pavlo Valeriyovych, Al-Gburi Waleed K Hameed
Teacher's e-mail	forum-for-me@bigmir.net
Discipline format	Normative discipline.
The volume of the discipline	120 hours , 4 ECTS
Link to the distance learning site	maem.kiev.ua
Consultations	Web conferences in various programs (Zoom, Skype, Myit, Jitsy, Teams, Viber, Facebook, Cisco Webs). Exchange tasks via e-mail, Wandrive
2. Annotation to the course	
<p>Propaedeutics of therapeutic dentistry is a discipline that allows students to master the phantoms of certain dental manipulations used in the clinic in the treatment of caries and its complications. Acquired in this way special (professional) competencies students then use in the process of working directly with patients. On phantom models and removed teeth, students master the basic dental manipulations for the preparation and filling of carious defects of teeth, perform endodontic interventions in the teeth.</p> <p>Interdisciplinary connections: close connection with surgical, orthopedic and therapeutic dentistry, as well as with biology, anatomy, histology, physiology. Without this fundamental knowledge of organs, tissues and structures, it is impossible to qualitatively diagnose, treat, and prevent dental diseases.</p>	
3. Purpose and objectives of the course	
<p>The purpose of teaching the discipline "propaedeutics of therapeutic dentistry" is to study the problems of the history of dentistry, anatomical and physiological features of the oral cavity, dental instruments, ergonomics, deontology, and the structure of the dental service.</p> <p>The main tasks of studying the discipline "propaedeutics of therapeutic dentistry" are:</p> <ul style="list-style-type: none"> -distinguish the features of the application of the principles of asepsis and antiseptics in the clinic therapeutic dentistry; -demonstrate on phantoms the ability to use basic dental tools and dental equipment; -demonstrate mastery of moral and deontological principles of medicine specialist; -demonstrate on phantoms the performance of dental manipulations during dental treatment for complicated and uncomplicated caries. 	
4. Competencies and learning outcomes	
Learning outcomes	Teaching methods
Have modern methods of prevention of diseases of the oral cavity	Lectures, practices, oral interviews, tests, dialogue with applicants for higher education, creative work with the creation of multimedia presentations and their presentation, independent work with literary sources
<p>- integral:</p> <p>Ability to solve problems and problems in the field of health care in the specialty "Dentistry" in a professional activity or in the learning process, which involves research and / or innovation and is characterized by uncertainty of conditions and requirements.</p> <p>- general:</p> <p>1. Ability to abstract thinking, analysis and synthesis; ability to learn and be modernly trained.</p>	

2. Knowledge and understanding of the subject area and understanding of the profession.
3. Ability to apply knowledge in practical situations.
4. Ability to communicate in the state language both orally and in writing. Ability to communicate in a second language.
5. Skills in the use of information and communication technologies.
6. Ability to search, process and analyze information from various sources.
7. Ability to adapt and act in a new situation; ability to work autonomously.
8. Ability to identify, pose and solve problems.
9. Ability to choose a communication strategy.
10. Ability to work in a team.
11. Interpersonal skills.
12. Ability to act on the basis of ethical considerations (motives).
13. Skills for safe activities.
14. Ability to evaluate and ensure the quality of work performed.
15. The desire to preserve the environment.
16. Ability to act socially responsible and civic conscious.

special (professional, subject):

- ability to apply the principles of asepsis and antiseptics in the clinic of therapeutic dentistry;
- ability to use basic dental tools and dental equipment;
- mastering the moral and deontological principles of a medical specialist;
- performing dental manipulations during dental treatment for complicated and uncomplicated caries.

5. Organization of course training

The volume of the course

Type of lesson	<i>Total amount of hours</i>
Lectures	10
Practical classes	60
Independent work	50

Course signs

Semester 3-4	Specialty <u>221 Dentistry</u>	Course (year of study) 2	Normative discipline
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Course thematics

Thematic plan of lectures

№	Topic	Hours
1.	History of development of therapeutic dentistry in Ukraine, in particular in Galicia. Therapeutic dentistry and its relationship to others disciplines. Ergonomics in modern dentistry.	2
2.	Anatomical and topographic features of the tooth structure. Classification carious cavities. Principles of carious preparation cavities according to localization. Dental tools and their purpose. Rules of asepsis and antiseptics.	2

3.	Sealing materials, their properties and classification. Features of use of odont-restoration materials, depending on their properties, localization of defect of hard tissues of uba.	2
4.	Materials for root canal obturation, classification, composition, properties of sealers, indications for use. Modern root canal filling technologies.	2
5.	Endodontics. Anatomical and physiological features of the endodontic .. Endodontic instruments, standards K O, basic techniques and manipulations of root canal development. Medicines \	2
	Total	10

Thematic plan of practical classes

№	Topic	Hours
	<i>Content module I. Structure of teeth and preparation of carious cavities 3rd semester</i>	
1	Therapeutic dentistry as the main dental discipline, sections. Contributions of Ukraine to its development. The purpose and task of the course of propaedeutics. Tooth structure. Topography of tissues. Histology of enamel. Topography and histology of cement and dentin. The structure of the pulp and periodontium. Age changes. The concept of periodontium, its functions. Saliva, oral fluid: composition, properties, functions.	3
2	Dental formula. Signs of teeth. Clinical and anatomical features of the structure of the incisors of the upper and lower jaws. Clinical and anatomical features of the structure of the canines.	3
3	Clinical and anatomical feature of the structure of the premolars of the upper and lower jaws. Clinical and anatomical features of the structure of the molars of the upper and lower jaws	3
4	Organization and equipment of the dental office. Drills, tips, rules of operation. Safety precautions. The concept of ergonomics. Dental tools, their purpose. Cutting tools. Rules of sterilization.	3
5	Ways of spreading the carious process in the hard tissues of the tooth and on various surfaces. Classification of carious cavities according to Black. Principles and mode of classical preparation.	3
6	Features of preparation of carious cavities of the I class according to Black.	3
7	Preparation of carious cavities of the V class according to Black.	3

8	Features of preparation of carious cavities of the II class according to Black	3
9	Features of preparation of carious cavities of the III class according to Black	3
10	Features of preparation of carious cavities of the IV class according to Black	3
11	Methods of preparation of carious cavities for modern materials: preparation techniques (MI-therapy), ART-technique (non-invasive), tunnel preparation and others	4
	Only for 1 content module	34
	Content module 2. Sealing materials and endodontics 4th semester	
1	Sealing materials. Classifications. Requirements. Materials for temporary seals and tight bandages. Therapeutic pads: groups, composition, properties, indications for use, methods of application. Insulating gaskets. Dental cements, their classification. Composition, positive and negative qualities, indications and rules of application. Glass ionomer cements. Composition, properties, positive and negative qualities, indications for use. Features of sealing. Amalgams: composition, properties, positive and 4negative qualities, indications and 5 rules of application. Features of grinding and polishing of seals.	3
2	The mechanism of adhesion of various filling materials to the hard tissues of the tooth. Adhesive systems: composition, principle of interaction with tooth tissues, application technique. Air conditioning, purpose, equipment. Errors and complications.	3
3	Composite materials. Classification, composition. Composite materials of chemical curing method: positive and negative qualities, indications, method of application. Photopolymer composite materials (heliomaterials), types, composition, properties. Photopolymerizers: purpose, physical and technical characteristics. Safety in working with them.	3
4	Endodontics. Endodontic instruments: classification, varieties, purpose, rules of application. Standards ISO.	3
5	Anatomical and topographic features of the structure of cavities and root canals of all groups of teeth. Removal of fillings, trepanation of tooth cavities, application of devitalizing agents. Airtight and loose bandages. Indications for use. Errors and complications. Amputation, extirpation of pulp, removal of its disintegration: tools, sequence, features of each manipulation, complications.	3
6	Medicinal treatment of root canals: instruments, drugs, classification. Mechanism of action. Errors and complications.	3

	Modern methods of mechanical treatment of root canals ("Step-back", "Crow-down"). Preparation of channels for sealing.	
7	Materials for root canal filling. Sealers: classification, requirements to them. Non-curing materials: composition, properties of different groups, indications for use. Hardening filling materials (sealers) for root canals: groups, composition, positive and negative qualities, indications for use. Methods of root canal filling.	3
8	Features of endodontic intervention with instrumentally inaccessible root canals. Mummification and impregnation. Task and purpose. Medicines. Depophoresis. Errors and complications. Features of preparation and filling of destroyed vital and depulped teeth, atypical carious cavities. Parapulpal and intrachannel pin structures. their types, importance in restoring the anatomical shape. Methods. Solid materials (fillers) for root canal filling. their varieties, positive and negative aspects. Modern technologies, their general characteristics.	3
9	Differential credit	2
	Total	26
	Total	60

Thematic plan of independent work of students

№	Topic	Hours	type of control
1.	Development of practical skills: anatomical and physiological features of the structure of the hard tissues of the tooth. Draw the masticatory surface of the molars and premolars of the upper jaw (drawing). Draw the masticatory surface of the molars and premolars of the mandible (figure).	10	Current

2.	<p>Make two models of the crown of the first premolar of the mandible and on one of them to form a carious cavity of the first class according to Black.</p> <p>Make two models of the crown of the first premolar of the upper jaw and on one of them to form a carious cavity of class V according to Black.</p> <p>Make two models of the crown the second molar of the mandible and on one of them to form a carious class II cavity according to Black.</p> <p>Make two models of the crown of the upper canine and on one of them to form a carious cavity of class III according to Black.</p> <p>Make two models of the crown of the upper central incisor and on one of them to form a carious cavity of class IV according to Black</p>	10	Current
3.	Preparation for practical classes, theoretical training.	20	
4.	<p>Development of practical skills:</p> <p>Sealing materials for fissure sealing (fissure sealants): types, properties, methods of work.</p> <p>Compomers: composition, properties, indications for use.</p> <p>Topographic anatomy of permanent teeth of the upper and lower jaws (cross section, drawing).</p> <p>Topographic anatomy permanent teeth of the upper and lower jaws (longitudinal section, drawing).</p>	4	
5.	Preparation for the differential test.	6	Final
Total		50	

6. Course evaluation system

General course evaluation system	<p>Current control is performed based on the control of theoretical knowledge, skills and abilities in practical classes. Independent study students are assessed in practical classes, and is an integral part of the final grade of the student. Current control is performed during the training sessions and aims at checking the assimilation of students learning the material. Forms of current control are:</p> <p>a) test tasks with a choice of one correct answer, with the definition of the correct sequence of actions, with determination of the conformity, defining the specific portion of the photo or diagram ("detection");</p> <p>b) individual oral questioning, interview;</p> <p>c) the solution of typical situational tasks;</p> <p>g) control of practical skills;</p> <p>Grades on the national scale ("excellent" - 5, "good" - 4, "satisfactory" - 3, "unsatisfactory" - 2), received by students, are displayed in the journals of attendance and academic group performance.</p> <p>Final control</p> <p>The final control is the form of a differentiated credit at the end of the 1st semester and at the end of the 2nd semester upon completion of the course of medical biology.</p> <p>The semester exam is a form of final control of mastering by the student of theoretical and practical material on academic discipline. The final control (exam) is carried out at the last control lesson.</p> <p style="text-align: center;">Students are admitted to the FC who have attended all the classes provided by the</p>
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curriculum in the discipline and while studying the module scored the number of points not less than the minimum (**72 points**). A student who, for good or bad reasons, has missed classes, is allowed to rework academic debt for a certain period of time.

Evaluation of current educational activities. During the assessment of mastering each topic for the current educational activity of the student scores are set on a 4-point (national) assessment scale. This takes into account all types of work provided by the discipline program. The student must receive a score on each topic. Scores on the traditional scale are converted into points. The final assessment of the current academic activity is the arithmetic mean (the sum of scores for each lesson is divided by the number of lessons per semester) and translated into points according to **Table 2**.

Table 2. Conversion of the average score for the current activity into a multi-point scale (for disciplines completed by diff.credit, exam)

4-point scale	120-point scale	4-point scale	120-point scale	4-point scale	120-point scale	4-point scale	120-point scale
5	120	4,45	107	3,91	94	3,37	81
4,95	119	4,41	106	3,87	93	3,33	80
4,91	118	4,37	105	3,83	92	3,29	79
4,87	117	4,33	104	3,79	91	3,25	78
4,83	116	4,29	103	3,74	90	3,2	77
4,79	115	4,25	102	3,7	89	3,16	76
4,75	114	4,2	101	3,66	88	3,12	75
4,7	113	4,16	100	3,62	87	3,08	74
4,66	112	4,12	99	3,58	86	3,04	73
4,62	111	4,08	98	3,54	85	3	72
4,58	110	4,04	97	3,49	84	<3	Not enough
4,54	109	3,99	96	3,45	83		
4,5	108	3,95	95	3,41	82		

*The maximum number of points that a student can collect for current educational activity during semester in order to be admitted to the exam is **120 points**.*

*The minimum number of points that a student can collect for current educational activity during semester in order to be admitted to the exam is **72 points**.*

Calculating of the number of points is based on obtained marks of student according to traditional scale while learning subject during the semester, by calculating the arithmetic mean (AM) that is rounded to two signs after comma.

Evaluation of independent work of students. Independent work of students, which is provided by the topic of the lesson together with the classroom work, is evaluated during the current control of the topic in the relevant lesson. Assimilation of topics that are submitted only for independent work is checked during the final module control.

Evaluation of final control.

The maximum number of points that a student can score during the exam is **80 points.**

The final control is considered credited if the student scored at least 60% of the maximum amount of points (for a 200-point scale - at least **50 points**).

Determining the number of points that a student scored in the discipline: the number of points that a student scored in the discipline is defined as the sum of points for the current academic activity (Table1) and for the final control (diff.credit, exam) (Table 3).

Table 3. Scale of assessment of differentiated (exam) credit:

Traditional scale	Points
«5»	70-80
«4»	60-69
«3»	50-59

Requirements for written work	The final written work is performed in the form of a test.
Practical classes	Classroom work
<i>The 1st semester</i>	
Classroom work - score from 2 to 5 for each topic.	
<i>Differentiated credit (semester control)</i> Semester control at the end of the 1st semester is provided in the form of Differentiated credit. (Table 2) Provides a final grade on a 120-point scale as the sum of grades for the current control of knowledge (oral examination, written survey, Practical work, abstracts). Semester control includes control of theoretical and practical training.	
Amount: minimum $72 + 50 = 122$, maximum $120 + 80 = 200$	
<i>The 2nd semester</i>	
Classroom work - score from 2 to 5 for each topic.	
Final module control is evaluated from 50 to 80 points and consists of: Test control - 40 tests = 40 points (1 point for the correct answer to 1 test). Answer to 2 theoretical questions of 20 points for each = 40 points. Amount: 80.	
Amount: minimum $72 + 50 = 122$, maximum $120 + 80 = 200$	
<p>The list of theoretical questions to prepare students for the exam.</p> <ol style="list-style-type: none"> 1. Theoretical dentistry, as the main dental discipline, its sections, connection with other disciplines. Goals and objectives of the propaedeutic course. 2. Historical stages of development of therapeutic dentistry. The contribution of Ukrainian scientists in 3. development. 4. Histological structure, chemical composition, physiological features of enamel. 5. The concept of structural and functional resistance of enamel. 6. Histological structure, chemical composition, physiological features of dentin. The concept of primary, secondary and tertiary dentin, features of its formation. 7. Histological structure, chemical composition, physical characteristics of cement. 8. The structure of the pulp of the tooth, its functions. Changed age-related pulps and diseases. 9. The structure of the periodontium, its function. Age and pathological processes occurring in the periodontium. Periodontium: concept, structure. 10. Saliva, oral fluid: composition, properties, functions. 11. Dental formulas: anatomical, clinical, WHO. 12. Signs of teeth: the angle of the crown, the curvature of the crown, the deviation of the root, contact surfaces. 13. Clinical and anatomical features of the structure of the incisors of the upper and lower jaw. 14. Clinical and anatomical features of the structure of the lobe shaft of the upper and lower jaw. 15. Clinical and anatomical features of the structure of the molars of the upper and lower jaw. 16. Anatomical and physiological features of the structure of individual areas of the oral mucosa: lips, cheeks, gums, bottom of the mouth, transitional folds, hard and soft palate, tongue. 17. Organization and equipment of the dental office: hygienic and ergonomic requirements. 18. Occupational safety of a dentist. Occupational diseases and their prevention. Safety in the dental office. 19. Modern equipment of the dental office. See drill. Universal dental units, chairs. 20. Dental tools for examination and treatment of the patient, purpose and features of application. Types of dental tips. 	

21. Tools for preparation and filling of carious cavities. Dental burs: variety, size, materials for their manufacture.
22. Classification of carious cavities according to Black, options for their localization for each class, atypical carious cavities.
23. Principles of preparation of KP: deontological, anesthesiological, biological expediency, technical rationality, preservation of periodontal tissues.
24. Principles of pain during the preparation of hard tissues of the teeth and ways to eliminate them. The concept of dissection mode.
25. Stages of classical preparation of carious cavities, their features and tools.
26. Features of preparation of carious cavities of 1 and 5 classes according to Black.
27. Features of preparation of carious cavities of the 2nd class according to Black depending on localization, presence or absence of the next tooth.
28. Features of preparation of carious cavities of the 3rd class according to Black depending on localization, presence or absence of the next tooth.
29. Features of preparation of carious cavities of the 4th class according to Black depending on localization, presence or absence of the next tooth.
30. features of preparation of KP under modern composite materials.
31. Micropreparation (MI-therapy): indications, features, advantages and disadvantages.
32. Classification of filling materials.
33. Materials for temporary seals and tight bandages. Requirements for them. Composition, properties, features of preparation and use.
34. Temporary seal and airtight bandage. Definition. Method of overlay.
35. Therapeutic pads: groups, composition, properties, indications for use, methods of application.
36. Classification of dental cements.
37. Phosphate-cement: composition, properties, indications for use, kneading technique.
38. Isolation of pulp: the concept. Types of insulating gaskets: liner and base. Materials for pulp insulation: composition, properties, indications for use, method of application.
39. Silico-phosphate dental cements, their composition, properties, indications for use, kneading and filling techniques.
40. Silicate dental cements, their composition, properties, indications for use, kneading and filling techniques.
41. Glass ionomer cements, their composition, properties, indications for use, mixing and sealing techniques.
42. The concept of contact point for filling a carious cavity, its importance in periodontal pathology, methods of recovery, the choice of filling material.
43. Silver amalgam: composition, positive and negative qualities, kneading and sealing technique, grinding and polishing of the seal.
44. Classification of composite filling materials. Composition and properties, indications for use.
45. Etching: purpose, means and methods. Possible mistakes and complications.
46. Adhesion. Definition. Types of adhesive systems.
47. The mechanism of adhesion of composite filling materials to chemical curing. Adhesive systems: composition, properties, principle of interaction with tooth tissues, application technique.
48. Characteristics of adhesive systems of 5th and 6th generations. Features of application. The concept of a lubricated layer, a hybrid zone, the collapse of collagen fibers.
49. Macro-filled composite filling materials: characteristics, indications, filling technique, features of grinding and polishing of the seal.
50. Micro-filled and hybrid composite filling materials comparative characteristics, indications, filling technique, features of grinding and polishing of seals.
51. Photo polymerizers: purpose, physical and technical characteristics.
52. Safety precautions when working with them.

53. Sealing materials for sealing lobes (lobe sealant): types, properties, methods of work.
54. Compomers: composition, properties, indications for use. Technique of clinical application.
55. Endodontics, definition. Topographic and anatomical endodontic terms and manipulations.
56. Modern endodontic tools for cleaning, expansion and filling of root canals: classification, purpose, rules of application. IBO standards.
57. Anatomical and topographic features of the structure of the tooth cavity and root canals of the incisors of the upper and lower jaws.
58. Anatomical and topographic features of the structure of the tooth cavity and root canals of the canines of the upper and lower jaws.
59. Anatomical and topographic features of the structure of the tooth cavity and root canals of the lumbar shaft of the upper and lower jaws. Anatomical and topographic features of the structure of the tooth cavity and root canals of the molars of the upper and lower jaws.
60. Trepanation of the crown of incisors: indications, features, stages, technique, tools, errors and complications.
61. Trepanation of the crown of the canines: indications, features, stages, technique, tools, errors and complications.
62. Trepanation of the crown of the lumbar shaft: indications, features, stages, technique, tools, errors and complications.
63. Trepanation of the molar crown: indications, features, stages, technique, tools, errors and complications.
64. Methods of applying devitalizing paste: tools, drugs, errors and complications. The concept of an airtight bandage.
65. amputation, extirpation and removal of pulpib disintegration instruments, features. Possibilities of error and complication.
66. Preparation of root canals: lumbar ornamental treatment of root canals by the methods of "Step-down" and "Crow-down" technique.
67. preparation of root canals. Tools for root canal machining: types of tips, endodontic instruments. Device for removing tool fragments from root canals.
68. Drug treatment of root canals: tools, drugs, modern techniques.
69. Chemical expansion of root canals: drugs, features. Possibilities of complications. Preparation of channels for sealing.
70. Classification of materials for root canal filling. Requirements for them, comparative characteristics.
71. Non-hardening lobe materials for root canals, antimicrobial and anti-inflammatory pastes: indications for use, methods and stages of sealing.

Circumstance of admission to the final control

1. Semester control at the end of the 1st semester is provided in the form of a differential credit. (Table 2) Provides a final score on a 120-point scale as the sum of scores for the current control of knowledge (oral examination, written survey, tests, verification of identification of micropreparations, abstracts), the results of 2 content modules.
2. Students are allowed to take the differentiated credit, exam only if there is no debt for the implementation of the curriculum.

7. Course policy

The organization of the educational process is carried out with the use of the European Credit Transfer System (ECTS) to assess student performance. The points gained in the current survey, independent work and points of the final control are credited. This must take into account the student's presence in class and his activity during practical work. Inadmissible: absences and late classes; use of a mobile phone, tablet or other mobile devices during the lesson (except for the cases provided by the curriculum and methodical recommendations of the teacher); copying and plagiarism; untimely performance of the task, the presence of unsatisfactory grades for 50% or more of the submitted theoretical and practical material.

8. RECOMMENDED LITERATURE

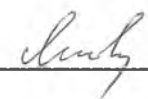
1. Basic:

- Marchenko I.Ya., Tkachenko I.M., Nazarenko Z.Yu. Propaedeutics of Therapeutic Stomatology (Module 1): Teaching manual for foreign students of dentistry faculties of higher medical educational establishment / Marchenko I.Ya., Tkachenko I.M., Nazarenko Z.Yu.; "UMSA". – Poltava: "ASMI", 2016. – 191 p.
- Marchenko I.Ya., Tkachenko I.M., Lobach L.N. Propaedeutics of Therapeutic Stomatology (Module 2): Teaching manual for foreign students of dentistry faculties of higher medical educational establishment / Marchenko I.Ya., Tkachenko I.M., Lobach L.N.; "UMSA". – Poltava: "ASMI", 2017. – 192 p.
- Mithell D. Oxford handbook of clinical dentistry / D. Mithell, L. Mithell. – Oxford University Press, 1999. – 804 p.
- Harty F. J. Endodontics in Clinic Practice. – 1994. – 366 p.
- Propaedeutics of Pedodontics. / L.F. Kaskova, I.Yu. Vashchenko. // Methodical recommendation – Poltava, 2007. – 156.
- Peter Heasman. Restorative Dentistry, Pediatric Dentistry and Orthodontics. - Churchill Livingstone. – 2003. – P. 378.
- Stock C.J.R., Nexammer C.F. Endodontics in practice // British Dental Association. – London, 1990

2. Additional:

- Petrushanko T.O., Ostrovska L.Y., Ilenko N.M. Clinical practicum in Therapeutic Dentistry: Manual/ Petrushanko T.O., Ostrovska L.Y., Ilenko N.M. - Kyiv: "Centruchbovoy literatury", 2019. – 260 p.
- Basics of Dentistry=Основи стоматології. Рекомендовано Міністерством охорони здоров'я України як підручник для студентів вищих медичних навчальних закладів III—IV рівнів акредитації. Маланчук В. О. та ін. 616с. 2018
- Cohen: Pathways of the Pulp, 9th ed., 2006. – Mosby, An Imprint of Elsevier. – 632p. Ingle J., Bakland L. Endodontics. – Hamilton: BC Decker Inc, 2002. – 1004 p.
- Guldener P.H., Langeland K. Endodontologie. Diagnostik and Therapie. Thieme. Stuttgart, New York, 1987. – 192 p.
- Harty F.J. Endodontics in clinical practice. – 3rd edition. – Cambridge, 1990
- Rosen S. L. Fundamentals and Principles of Polymeric Material / S. L. Rosen. – New-York, 1982. – 187 p.
- Pahomov P. V. «Primary Dental D

Lector



Al-Gburi Waleed K Hameed