

NATIONAL PIROGOV MEMORIAL MEDICAL UNIVERSITY, VINNYTSIA

«APPROVE»

Acting rector of higher education institution
professor of HEI
Viktorii PETRUSHENKO

« 31 » 08 2023 y.

«AGREE»

Head of Therapeutic Dentistry Department
professor of HEI Mariia
SHINKARUK-DYKOVYTSKA

« 28 » 08 2023 y.

SYLLABUS

OF EDUCATIONAL DISCIPLINE

TECHNOLOGIES OF CARIES TREATMENT

Specialty	221 Dentistry
Educational level	Master
Educational program	EPP «Dentistry», 2022
Academic year	2023-2024
Department	Therapeutic Dentistry
Contact Information	terstom@vnm.edu.ua V.Stus Street, 2
Syllabus developer	Iryna HORLENKO, Candidate of Medical Sciences, Associate Professor Nataliia ALEKSYEYENKO, Assistant

1. Status and structure of the discipline

Discipline status	Elective
Discipline code in EPP / discipline place in EPP	ED 3.10 // discipline of professional training
Course, semester	3 rd course
Scope of the discipline (total number of hours / number of ECTS credits)	90 hours / 3 credits ECTS
The structure of the discipline	Lectures – 10 hours Practical classes – 30 hours Independent work - 50 hours
Teaching language	English
Form of study	Full-time (or on-line by order)

2. Description of the discipline

Short annotation of the course, relevance

The program of the discipline “Technologies of caries treatment” is compiled in accordance with the procedure for training applicants of the second (Master’s) level of education in higher medical educational institutions of Ukraine in accordance with the requirements of the ECTS credit transfer system of the organization of the educational process, the exemplary curriculum for the training of specialists of the second (Master’s) level of higher education in the field of knowledge 22 “Health care” specialty 221 “Dentistry”.

The discipline is an elective component of the educational and professional program “Dentistry”, the cycle of professional training of the Master of Dentistry, composed for 3 credits, which students learn during the 6th semester of the 3rd year of study.

Prerequisite

- Human anatomy (clinical features of the structure of teeth)
- Histology, cytology and embryology (histological features of the structure of teeth)
- Bioorganic and biological chemistry (biochemical and biophysical processes in hard and soft tissues of the oral cavity)
- Pathological anatomy (pathomorphological signs of diseases of the oral cavity)
- Physiology (physiological processes occurring in the hard and soft tissues of the oral cavity, the transmission of pain impulse through the hard tissues of the tooth)
- Pathophysiology (pathological processes occurring in the hard and soft tissues of the oral cavity)
- Microbiology, virology and immunology (methods of microbiological research, microflora of the oral cavity in normal and in pathology)
- Clinical pharmacology (knowledge of drugs used in dentistry)
- Internal medicine (methods of examination of the patient, clinical signs of general somatic diseases which can have displays in an oral cavity, features of medical tactics concerning patients with general systemic pathology)
- Propaedeutics of therapeutic dentistry (questions of clinical features of teeth, tissues and organs of the oral cavity, organization and equipment of the dental office, principles, methods and stages of preparation of carious cavities of different localization, composition, properties and methods of dental fillings, endodontic treatment of the cavity canals, materials and methods of their filling).

The purpose of the course and its significance for professional activity is the teaching of the academic discipline “Technologies of caries treatment” in the third year of study is the training of a dentist who is able to diagnose, prevent and treat dental diseases: non-carious le-

sions, caries, to ensure the formation of clinical thinking and the acquisition of professional competencies.

- integral: IC: Specialized conceptual knowledge, which includes modern scientific achievements in the field of professional activity or field of knowledge and is the basis for original thinking and research, critical understanding of problems in the field and at the border of fields of knowledge.

- General competencies (GC):

GC1. Ability to abstract thinking, analysis and synthesis.

GC 2. Knowledge and understanding of the subject area and understanding of professional activity.

GC 3. Ability to apply knowledge in practice.

GC 6. Skills in the use of information and communication technologies.

GC 7. Ability to search, process and analyze information from various sources.

GC 8. Ability to adapt and act in a new situation.

GC 9. Ability to identify, pose and solve problems.

GC 10. Ability to be critical and self-critical.

GC 11. Ability to work in a team.

- special:

SC 1. Ability to collect medical information about the patient and analyze clinical data.

SC 2. Ability to interpret the results of laboratory and instrumental research.

SC 3. Ability to diagnose: determine the preliminary, clinical, final, concomitant diagnosis, emergencies.

SC 4. Ability to plan and implement measures for the prevention of diseases of organs and tissues of the oral cavity and maxillofacial region.

SC 5. Ability to design the process of providing medical care: to determine the approaches, plan, types and principles of treatment of diseases of organs and tissues of the oral cavity and maxillofacial region.

SC 7. Ability to determine the tactics of management of patients with diseases of organs and tissues of the oral cavity and maxillofacial region with concomitant somatic diseases.

SC 8. Ability to perform medical and dental manipulations.

SC 9. Ability to treat major diseases of organs and tissues of the oral cavity and maxillofacial region.

Postrequisite

Therapeutic dentistry is a fundamental science that integrates with other dental disciplines, namely surgical, orthopedic, pediatric dentistry to develop the ability to apply the acquired knowledge in the process of further study of all clinical disciplines and in future professional activities.

2. Learning outcomes

At the end of the study discipline “Technologies of caries treatment” after the 3rd year students *should know*:

Clinical manifestations, diagnosis, treatment and prevention of dental diseases:

1. Features of the course of caries depending on the localization of the lesion.
2. Analgesia in the clinic of therapeutic dentistry.
3. Tools and equipment for preparation of carious cavities.
4. Tactics of carious cavity preparation, taking into account individual caries resistance and properties of used filling materials.
5. The “prophylactic expansion” method.
6. The “biological feasibility” method.
7. Method of “prophylactic filling”.
8. Methods of clinical use of composites.
9. Quality criteria of tooth restoration.

to be able to: make a diagnosis and carry out therapy of the pathology of the hard tooth tissues using modern knowledge about the aetiology and pathogenesis of caries and the latest achievements in dentistry.

To master the skills:

1. To carry out an examination of a dental patient, to make a treatment plan.
2. To Determine the group affiliation of teeth based on morphological features.
3. To performe analgesia for odontopathology treatment.
4. To choose tools for carious cavities preparation of preparation of different classes according to Black.
5. To carry out preparation of the carious cavity of the 1st class by Black.
6. To carry out preparation of the carious cavity of the 2nd class by Black.
7. To carry out preparation of the carious cavity of the 3rd class by Black.
8. To carry out preparation of the carious cavity of the 4th class by Black.
9. To carry out preparation of the carious cavity of the 5th class by Black.
10. To carry out preparation of the carious cavity of the 6th class according to Black.
11. To carry out preparation of combined carious cavities.
12. To carry out isolation of the working field using a rubber dam in various clinical situations.
13. To choose a filling material.
14. To choose adhesive system depending on the clinical situation.
15. To carry out filling of previously prepared carious teeth.
16. To carry out the finishing treatment of the restoration.
17. To assess the quality of the restoration.

4. CONTENT AND LOGISTICS OF THE DISCIPLINE

Module 1. “Caries treatment technologies”	VI semester 90 hours/ 3.0 credits ECTS	Lectures – 1-5 Practical classes – 1-15 Topics for self-study – 1-5
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The discipline includes 5 lectures and 15 topics.

Topics of lectures

Topic 1. Etiology, pathogenesis and pathological anatomy of dental caries. Classification of dental caries.

Topic 2. Dental filling materials. General Information. Variants of applying permanent fillings, isolating and therapeutic liners. Classification of modern dental filling materials.

Topic 3. Adhesive systems for filling with composites. Modern aspects of use in the clinic.

Topic 4. Modern composite materials. Classification. Flow-packable composites, sealants. Compomers.

Topic 5. The latest technologies in the treatment of caries.

Topics of practical classes

Topic 1. Modern ideas about the aetiology and pathogenesis of dental caries.

- Topic 2. Features of the caries manifestation depending on the localization of damage.
- Topic 3. Analgesia in the clinic of therapeutic dentistry.
- Topic 4. Tools and equipment for preparation of carious cavities.
- Topic 5. The choice of tactics for preparation of the carious cavity taking into account individual caries resistance and the properties of used filling materials.
- Topic 6. The method of “preventive expansion”.
- Topic 7. The method of “biological feasibility”.
- Topic 8. The “prophylactic filling” method.
- Topic 9. Methods and principles of carious cavities preparation.
- Topic 10. Protection of the pulp during filling of carious cavities.
- Topic 11. Therapeutic liners in the treatment of caries and features of their use.
- Topic 12. Methods of the use of adhesive systems. Adhesive restoration technique.
- Topic 13. Methods of clinical use of chemical hardening composites.
- Topic 14. Basic principles and methods of tooth restoration with light curing composites.
- Topic 15. Infiltration methods of caries treatment.

Topics for independent work

- Topic 1. Universal dental units. Dental burs used for preparation of carious cavities. dental handpieces. Hand instruments for processing of carious cavities.
- Topic 2. Materials for bandages and temporary fillings.
- Topic 3. Materials for isolating liners. Isolating varnishes.
- Topic 4. Zinc phosphate cements.
- Topic 5. Glass ionomer cements.

The topics of the lecture course reveal the problematic issues of the relevant sections of the discipline.

Practical classes involve theoretical substantiation of the main issues of the topic and the acquisition of the following practical skills:

1. To perform an examination of a dental patient, draw up a treatment plan.
2. To determine the group affiliation of teeth based on morphological features.
3. To administer analgesia for odontopathology treatment.
4. To choose tools for preparation of carious cavities of different classes by Black.
5. To carry out preparation of the carious cavity of the 1st class by Black.
6. To carry out preparation of the carious cavity of the 2nd class by Black
7. To carry out the preparation of the carious cavity of the 3rd class by Black
8. To carry out preparation of the carious cavity of the 1st class by Black
9. To carry out preparation of the carious cavity of the 5th class by Black.
10. To carry out preparation of the carious cavity of the 6th class by Black.
11. To carry out preparation of combined carious cavities.
12. To perform isolation of the working field using a rubber dam in various clinical situations.
13. To choose a filling material.
14. To choose adhesive system depending on the clinical situation.

15. To carry out filling of previously prepared carious teeth.
16. To carry out the finishing treatment of the restoration.
17. To assess the quality of the restoration.

The student's independent work provides preparation for practical classes and intermediate tests, study of topics for independent extracurricular work, writing essays, preparation of presentations, tables. Assessment of topics that are assigned only for independent work and are not included in the topics of classroom training sessions is carried out at the last classroom session.

Thematic plan of lectures, calendar plans of practical classes, thematic plan of independent extracurricular work, volume and directions of individual work are published on the website of the department.

The route for obtaining materials: Department Therapeutic dentistry / for students / Full-time education / dentistry / 5course / Educational materials / or through the link <https://www.vnmdu.edu.ua/en/department/department/44#> . Access to the materials is carried out through the student's corporate account s000XXX@vnmdu.edu.ua.

5. Forms and methods of monitoring academic performance

Current control in practical classes	Methods: oral examination; written survey; solving situational problems; structured according to the procedure control of practical skills and abilities in accordance with the list of practical skills for each lesson.
Final semester control (credit) at the end of the V semester	According to the regulations on the organization of the educational process in National Pirogov Memorial Medical University, Vinnytsya (link https://www.vnmdu.edu.ua/General information / Basic documents)
Tools for diagnosing learning success	Theoretical questions, clinically-oriented situational tasks, practical tasks, demonstration of practical skills

1. Assessment criteria

Knowledge assessment is carried out in accordance with the Regulations of the Academic process in National Pirogov Memorial Medical University, Vinnytsya (link <https://www.vnmdu.edu.ua/en/general-regulations>)

Assessment of oral/written response during ongoing control:

Mark / Sign “excellent”

It is awarded to a student who fully answered all the questions posed by the teacher, solved all received situational tasks of the 1st, 2nd and 3rd levels of difficulty. The student has comprehensive and in-depth knowledge of the program material, has mastered the basic and is familiar with additional literature; closely connects theoretical knowledge with practice.

Mark / Sign “good”

The student receives a complete answer to all the questions, he made a few unprincipled mistakes, completed level 1 and 2 situational tasks. The student makes mistakes when solving level 3 situational tasks. The student has sufficient knowledge of the program material, successfully completes the tasks provided by the program, has mastered the basic literature recommended by the program, correctly uses theoretical knowledge when solving practical tasks.

Mark / Sign “satisfactory”

The student receives, if he gave the minimum (at the cognitive level) information on each of the questions. A student should not make strategic, principled mistakes when answering questions. The student performs situational tasks of level 1, makes mistakes when solving situational tasks of level 2 and 3. The student possesses a minimum of mandatory knowledge and skills in the discipline, but has not mastered the details of the program material, allows inaccuracies, not quite correct wording, violates the sequence of the presentation of the program material.

Mark / Sign “unsatisfactory”

The student receives, if he has not demonstrated minimal, elementary (cognitive) knowledge on any issue, performs situational tasks with gross mistakes. The student makes strategic, principled mistakes when answering questions. The student does not fully possess the minimum required knowledge of the discipline, has not mastered the main program material, makes gross mistakes in completing the tasks provided by the program.

Current control	According to the four-point system of traditional grades: 5 “excellent”, 4 “good”, 3 “satisfactory”, 2 “unsatisfactory”
Credit	On a 200-point scale (arithmetic mean for the semester is converted into points) Credited: from 122 to 200 points Not credited: less than 122 points (see Evaluation Scale)
Discipline assessment	On a 200-point scale (arithmetic mean for the semester is converted into points) Credited: from 122 to 200 points Not credited: less than 122 points (see Evaluation Scale)

Rating scale: national and ECTS

The sum of points for all types of educational activities	ECTS assessment	Score on a national scale	
		for exam, course project (work), practice	for credit
180-200	A	excellent	credited
170-179,99	B	good	
160-169,99	C		
141-159,99	D	satisfactory	
122-140,99	E	satisfactory	
0-121,99	FX	unsatisfactory with the possibility of reassembly	not credited with the possibility of re-assembly
	F	unsatisfactory with compulsory re-study of the discipline	not credited with compulsory re-study of the discipline

7. Discipline policy

The student has the right to receive quality educational services, access to modern scientific and educational information, qualified counseling during the study of the discipline and the acquisition of practical skills. The policy of the department during the provision of educational services is student-centered, based on the regulations of the Ministry of Education and the Ministry of Health of Ukraine, the university charter and the procedure for providing educational services, regulated by the main provisions of the educational process in National Pirogov Memorial Medical University and the principles of academic integrity.

Observance of National Pirogov Memorial Medical University regulations, safety measures at practical classes

Requirements for preparation for practical classes. The student must arrive on time for a practical lesson, theoretically prepared according to the topic. Form of clothing: medical gown, changeable shoes, mask, gloves. Adhere to ethical norms and tolerance when discussing the topic of the lesson. Follow the rules of safety and ergonomics when practicing practical skills.

Use of mobile phones and other electronic devices. The use of mobile phones during classes is prohibited (except for emergencies to call for help). It is allowed to use the following electronic devices: equipment for multimedia presentation of material, devices for practicing practical skills.

Academic integrity. During the study of the discipline the student must be guided by the Code of Academic Integrity of National Pirogov Memorial Medical University ([https://www.vnmu.edu.ua/general information / Basic documents / Code of Academic Integrity](https://www.vnmu.edu.ua/general-information/Basic-documents/Code-of-Academic-Integrity)). In case of violation of academic integrity (write-off, use of mobile phone during knowledge assessment, etc.) during the current and final tests, the student receives a grade of "2" and must work it out to his teacher in the prescribed manner within two weeks after unsatisfactory grade.

Missed classes. Missed classes are practiced in the manner prescribed by the Regulations on the organization of the educational process in National Pirogov Memorial Medical University (link [https://www.vnmu.edu.ua/ General information / Basic documents](https://www.vnmu.edu.ua/General-information/Basic-documents)) at the time specified in the schedule of work (published on the website of the department <https://www.vnmu.edu.ua/кафедра-терапевтичної-стоматології> to duty teacher. In order to complete the missed lesson, the student must answer theoretical questions and perform practical tasks on the missed topic. To complete the lecture, the student must make a short summary of the missed topic, navigate the topic and be ready for discussion / answer to questions on the subject of the lecture.

The procedure for admission to the final control of the discipline is given in the Regulations on the organization of the educational process in National Pirogov Memorial Medical University (link [https://www.vnmu.edu.ua/ General information / Basic documents](https://www.vnmu.edu.ua/General-information/Basic-documents)). Students who have not missed unfinished practical classes and lectures and received an average traditional grade of at least "3" are admitted to the final control.

Additional individual points. Individual points in the discipline (from 6 to 12) the student can get for individual work, the amount of which is published on the website of the department in educational materials of the discipline, the number of points is determined by the results of IRS according to the Regulations on the organization of educational process in National Pirogov Memorial Medical University (link [https://www.vnmu.edu.ua/ General information / Basic documents](https://www.vnmu.edu.ua/General-information/Basic-documents)).

Conflict resolution. In the event of misunderstandings and complaints to the teacher due to the quality of educational services, assessment of knowledge and other conflict situations, the student must first report their claims to the teacher. If the conflict issue is not resolved, the student

has the right to submit an appeal to the head of the department in accordance with the Regulations on the consideration of appeals of applicants for higher education at National Pirogov Memorial Medical University (<https://www.vnmu.edu.ua/> General information / Basic documents).

Politics in terms of distance learning. The procedure for distance learning is regulated by the Regulations on the introduction of elements of distance learning in National Pirogov Memorial Medical University, Vinnytsya (<https://www.vnmu.edu.ua/> General information / Basic documents). The main training platforms for training are Microsoft Team, Google Meets. The procedure for performing practical classes and lectures, exercises and consultations during distance learning is published on the website of the department (<https://www.vnmu.edu.ua/> Department of Therapeutic Dentistry / Student or [https://www.vnmu.edu.ua /](https://www.vnmu.edu.ua/) Department of Therapeutic Dentistry / News).

Feedback from the teacher is via messengers (Viber, Telegram, WhatsApp) or e-mail (at the teacher's choice) during business hours.

1. Training resources

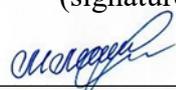
Educational and methodological support of the discipline is published on the website of the department ([https://www.vnmu.edu.ua/kafedra-terapevtychnoi-stomatologii /](https://www.vnmu.edu.ua/kafedra-terapevtychnoi-stomatologii/) Student). Consultations are held twice a week according to the consultation schedule.

2. The schedule and distribution of groups by teachers is published on the web page of the department (<https://www.vnmu.edu.ua/kafedra-terapevtychnoi-stomatologii/> Student).

3. Questions to the intermediate and final controls of the discipline are published on the web page of the department (<https://www.vnmu.edu.ua/kafedra-terapevtychnoi-stomatologii/> Student)

The syllabus on the discipline “Caries treatment technologies” was discussed and approved at the meeting of the department of the Therapeutic dentistry (protocol № 1, from “28” August 2023 y.

Responsible for the course  Ass. Prof. of HEI Iryna HORLENKO
(signature)

Head of the Department  Prof. of HEI Mariia SHINKARUK-DYKOVYTSKA
(signature)