

NATIONAL PIROGOV MEMORIAL MEDICAL UNIVERSITY, VINNYTSYA

«APPROVE»

Acting rector of higher education institution  
professor of HEI

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« 31 » 08 2023 y.

«AGREE»

Head Therapeutical Dentistry Department  
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 SHINKARUK-DYKOVYTSKA

« 28 » 08 2023 y.

SYLLABUS  
of educational discipline  
FUNDAMENTALS OF AESTHETIC DENTAL RESTORATION

Specialty	221 Dentistry .
Educational level	Master
Educational programme	EPP Dentistry. 2022
Academic year	2023-2024
Department	Therapeutic dentistry
Contact information	terstom@vnmu.edu.ua V.Stus Street, 2
Syllabus developer	Ass.. PhD Vakhovskyi Vitalii

## 1. Status and structure of the discipline

Discipline status	elective
Discipline code in EPP/ discipline place in EPP	VK 5.5 //discipline professional training
Course / semester	5-rd year (IX semester)
The amount of discipline ( the total number of hours / number of credits ECTS)	60 hours / 2 credits ECTS
Number of content modules	1 modules
The structure of the discipline	Practical classes – 30 hours Lectures – 10 hours Independent work – 20 hours
Language of study	English
Form of study	Full - time ( <i>or on-line by order</i> )

## 2. Description of the discipline

### Short annotation of the course, relevance

The elective course "Fundamentals of aesthetic dental restoration" is relevant for the formation of professional competencies of a modern dental graduate, because many patients pay attention to the aesthetics of not only the frontal, but also the chewing group of teeth. The main requirements for a high-quality filling, in addition to a good marginal fit, are the conformity of the color of the material to the general color background of the tooth and a well-polished, shiny surface. The subject area of the program is the achievement by the dental student of knowledge, abilities and skills in highly aesthetic restoration of teeth, the program is focused on obtaining knowledge about the comprehensive examination of the dental patient, the study of the leading syndromes and symptoms in therapeutic dentistry, making a preliminary diagnosis, analyzing the results of the examination and differential diagnosis, diagnosis, complex treatment, detection of complications, formation of skills for performing direct aesthetic restorations of teeth.

### Prerequisite

- Human anatomy (clinical features of the structure of the teeth, periodontium, oral mucosa and oral organs)
- Histology, cytology and embryology (histological features of the structure of teeth, periodontium, oral mucosa and oral organs, embryogenesis of oral organs)
- 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 somatic pathology)
- Propaedeutics of therapeutic dentistry (issues 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 channels, materials and methods of their filling)

### **The purpose of the course and its significance for professional activities**

is the acquisition of theoretical and practical knowledge and skills of a dentist in the field of "Therapeutic dentistry" and "Fundamentals of aesthetic tooth restoration", which are manifested in the ability to diagnose, treat and prevent major dental diseases, 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 competencies (SC):

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 6. Ability to determine the rational mode of work, rest, diet in patients in the 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.

SC 12. Ability to organize and carry out screening examinations in dentistry.

SC 13. Ability to assess the impact of the environment on the health of the population (individual, family, population)

SC 14. Ability to maintain regulatory medical records.

### **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.

### **3. Learning outcomes**

Upon completion of the study of the discipline "Fundamentals of aesthetic restoration of teeth" students should **know**: clinic, diagnosis, treatment and prevention of dental diseases:

1. Indications and contraindications for direct restoration. Stages of direct restoration.
2. Necessary tools for preparation of hard tooth tissues and restoration.
3. Peculiarities of patient examination at the stage of planning direct tooth restoration.
4. Analysis of facial aesthetics and initial clinical situation when planning tooth restoration.
5. Concept of tooth color. Principles and methods of choosing restoration color. Reproduction of natural tooth color.
6. Planning of direct tooth restoration.
7. Professional oral hygiene as a mandatory component during direct tooth restoration.
8. Anatomical features of different groups of teeth.
9. Stages of restoration with bilaminar technique.
10. Features of the biomimetic concept.
11. Tooth restoration by stratification technique.
12. Medicinal treatment of a carious cavity after tooth preparation at the stage of direct restoration.
13. Classification of filling materials used for direct tooth restoration. Advantages and disadvantages.
14. Adhesion. Concept. Classification and characteristics of adhesive systems.
15. Finishing of the tooth during direct restoration.
16. Quality criteria of direct tooth restoration.

**to be able to:** make a diagnosis and carry out therapy of the pathology of the hard tissues of the teeth using the main methods of restoration. Master the skills:

1. Conduct an examination of the dental patient, draw up a treatment plan and a photo protocol.
2. To determine the group affiliation of teeth based on morphological features.
3. Restore the anatomical shape of tooth crowns from plasticine.
4. Carry out preparation for direct composite restoration.
5. Conduct isolation of the working field using a rubber dam in various clinical situations.
6. Determine the color of the tooth(s).
7. Carry out restoration of a depulped tooth using a photocomposite without a pin method.
8. Finish the direct restoration.
9. Assess the quality of the restoration.

#### 4. CONTENT AND LOGISTICS OF THE DISCIPLINE

<b>Module 1</b> <b>«FUNDAMENTALS OF AESTHETIC DENTAL RESTORATION»</b>	<b>IX семестр</b> <b>60 hours/ 2 credits ECTS</b>	<b>Practical classes № 15</b> <b>Lectures – № 5</b> <b>Topics for self-study № 7</b>
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The discipline includes 15 topics

##### Topics of practical classes

Topic 1. The concept of aesthetics. The subject of aesthetic dentistry. Goals and objectives of aesthetic dentistry. Smile analysis. Fundamentals of aesthetic analysis of the face, the shape of dental crowns.

Topic 2. Features of the anatomical structure of the frontal and lateral groups of teeth.

Topic 3. The concept of aesthetic restoration of teeth. Indications and contraindications to direct and indirect tooth restoration. Indications for visual restoration of the shape of the gingival margin. Microinvasive restoration and total restoration.

Topic 4. Microrelief of teeth. Aesthetic properties of the tooth. Optical properties of enamel and dentin. Features of determining the color of teeth in the dentist's office.

Topic 5. Building a treatment plan. Photo protocol. DSD - digital smile design. Diagnosis. Mock-up and Wax-up.

Topic 6. Isolation of the working field during the restoration of the frontal and lateral groups of teeth. Using the rubber dam system. Types of clamps.

Topic 7. Modern methods of processing hard tissues of teeth. Advantages and disadvantages. Minimally invasive preparation. Ultrasonic preparation. Equipment. Types and options for the formation of enamel bevels.

Topic 8. The choice of material for highly aesthetic artistic restorations by the direct method. Modern composite materials. Nanocomposites. Ormoker. Composition, properties, advantages and disadvantages, application technology.

Topic 9. The choice of adhesive system, depending on the clinical situation. Features of application of modern adhesive systems of IV, V, VI, VII generations. Advantages and disadvantages. Stages of adhesive preparation. Factors influencing the strength and prolongation of adhesion.

Topic 10. Modern concept of restoration: biomimetic, bilaminar and stratification techniques. Advantages and disadvantages.

Topic 11. Technique of direct restoration of the frontal group of teeth: incisors, canines.

Topic 12. Technique of direct restoration of the lateral group of teeth: premolars, molars.

Topic 13. Restoration of depulped teeth. Aesthetic pin designs.

Topic 14. Restoration of the contact point of the front and lateral teeth. Tools for contact point restoration: matrix, matrix systems, wedges, metal rings, light-conducting nozzles and cones, OptraContact tool.

Topic 15. Finishing of restoration. Contouring, grinding and polishing. Tools. Conducting algorithm. Criteria for quality restoration.

### **Thematic plan of lectures**

1. Tools used in highly esthetic restorations
2. Features of working with photopolymer lamps. Types of photopolymer lamps. Advantages and disadvantages of halogen and LED lamps.
3. Application of the technique of "silicone key" in the restoration of the frontal and lateral group of teeth.

### **Thematic plan for independent work**

Topic 1. Tools used in highly esthetic restorations

Topic 2. Features of working with photopolymer lamps. Types of photopolymer lamps. Advantages and disadvantages of halogen and LED lamps.

Topic 3. Application of the technique of "silicone key" in the restoration of the frontal and lateral group of teeth

### **List of practical skills in the discipline "Therapeutic dentistry"**

1. Conduct an examination of the dental patient, draw up a treatment plan and a photo protocol.
2. To determine the group affiliation of teeth based on morphological features.
3. Restore the anatomical shape of tooth crowns from plasticine.
4. Prepare for direct composite restoration of carious cavity class 1 according to Black.
5. Carry out preparation for direct composite restoration of carious cavity class 2 according to Black.
6. Prepare for direct composite restoration of carious cavity class 3 according to Black.

7. Prepare for direct composite restoration of carious cavity of class 4 according to Black
8. Prepare for direct composite restoration of carious cavity class 5 according to Black.
9. Prepare for direct composite restoration of carious cavity class 6 according to Black.
10. Prepare for direct composite restoration of combined carious cavities.
11. Conduct isolation of the working field using a rubber dam in various clinical situations.
12. Determine the color of the tooth(s).
13. Select the shade of the composite material for direct restoration.
14. Select the filling material and adhesive system depending on the clinical situation.
15. Carry out restoration of the central incisor (III class according to Black)
16. Perform lateral incisor restoration (Class III according to Black)
17. Carry out restoration of the canine of the upper jaw (III class according to Black)
18. Carry out restoration of the central incisor (IV class according to Black)
19. Carry out molar restoration (I class according to Black)
20. Carry out molar restoration (II class according to Black)
21. Carry out premolar restoration (I class according to Black)
22. Carry out premolar restoration (II class according to Black)
23. Carry out premolar restoration (Class V according to Black)
24. Carry out the restoration of a depulped tooth using a photocomposite without a pin method.
25. Carry out the restoration of a depulped tooth using a fiberglass pin.
26. To restore the contact point using modern matrix systems.
27. Reconstruction of the dentition.
28. Perform tooth transformation.
29. Carry out the finishing treatment of the direct restoration.
30. Assess the quality of the restoration.

The student's independent work involves preparation for practical classes and intermediate tests, study of topics for independent extracurricular work, preparation of presentations, tables. Control of mastering the topics of independent extracurricular work is carried out in practical classes and final control of the discipline.

Individual work includes the study of scientific literature, preparation of reviews on the topics provided for presentation at meetings of the student scientific group, the implementation of scientific and practical research, participation in specialized competitions, scientific and practical conferences, competitions of student research papers.

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

Route of receiving materials: Department of Therapeutic Dentistry / Student / Full-time study / Dentistry / 5th year / Teaching materials / or at the link [https://www.vnmu.edu.ua/deepartment of therapeutic dentistry](https://www.vnmu.edu.ua/deepartment%20of%20therapeutic%20dentistry).

Access to materials is provided from the student's corporate account [s000XXX@vnmu.edu.ua](mailto:s000XXX@vnmu.edu.ua)

## **5. Forms and methods of monitoring learning success**

Current control in practical classes	Methods: oral examination; written survey; test control; 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.
Control of mastering the thematic section of the discipline at intermediate control classes	Methods: oral or written questioning, electronic testing, solving situational problems, control of practical skills
Final semester control (credit) at the end of the semester	According to the regulations on the organization of the educational process in National Pirogov Memorial Medical University, Vinnytsya (link <a href="https://www.vnmue.edu.ua/General%20information%20-%20Basic%20documents">https://www.vnmue.edu.ua/General information / Basic documents</a> )
Tools for diagnosing learning success	Theoretical questions, tests, clinically-oriented situational tasks, practical tasks, demonstration of practical skills.

## 6. Evaluation criteria

Assessment of knowledge is carried out in accordance with the Regulations on the organization of the educational process in National Pirogov Memorial Medical University, Vinnytsya (link [https://www.vnmue.edu.ua/General information / Basic documents](https://www.vnmue.edu.ua/General%20information%20-%20Basic%20documents))

Continuous assessment	On a four point system of traditional assessments: 5 «excellent», 4 «good», 3 «satisfactory», 2 «unsatisfactory»
Midpoint separation assessment	On a four-point system of traditional assessments
Control of practical skills	According to the four-point system of traditional assessments
Discipline assessments:	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, Vinnytsya and the principles of academic integrity.

### Observance of VNMU 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, Vinnytsya (<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,



Vinnytsya (link <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, Vinnytsya (link <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, Vinnytsya (link <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 in National Pirogov Memorial Medical University, Vinnytsya (<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/> 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> / Student). Consultations are held twice a week according to the consultation schedule.

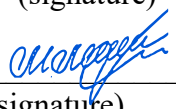
2. The schedule and distribution of groups by teachers is published on the web page of the department (<https://www.vnmu.edu.ua/kafedra-terapevtychnoi-stomatologii/> Student).

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 subject "Fundamentals of aesthetic dental restoration" (5th course) was discussed and approved at the meeting of the department \_\_\_\_\_ (protocol № 1, from "28" 08 2023 y.

Responsible for the course  Ass., PhD Vitalii VAKHOVSKIY

(signature)

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