

**DANYLO HALYTSKYI  
LVIV NATIONAL MEDICAL UNIVERSITY**

**Prosthetic Dentistry Department**



**APPROVED**  
First Vice-Rector of scientific  
and pedagogical work  
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**EDUCATIONAL DISCIPLINE PROGRAM  
SB 2.7.**

**ELABORATIVE MEDICAL PRACTICE IN PROSTHETIC DENTISTRY  
individual profile course of practical training" Therapeutic Dentistry"**

**Competence Course for Specialists**

**in Second (Master's) Level of Higher Education**

**Field of knowledge 22 "Health Care"**

**Specialty 221 "Dentistry"**

**for 5th year students of Dentistry faculty**

Discussed  
and approved  
at the methodical meeting of  
Orthopedic dentistry department  
Protocol № 6  
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Head of the Department  
Assoc.Prof. Victor KUKHTA



Approved at the  
profile methodical commission  
in dental disciplines  
Protocol № 2  
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## INTRODUCTION

**The study program of the educational discipline industrial medical practice with of orthopedic dentistry, individual profile course "therapeutic dentistry"** in accordance with the Standard of higher education of the second (master's) level fields of knowledge 22 "Health care" specialty 221 "Dentistry"

*Master of Dentistry educational program*

**Description of the academic discipline (abstract).** Discipline involves learning practical skills in orthopedic dentistry according to its main sections: "Propaedeutics orthopedic dentistry", "Fixed prosthetics", "Partial removable prosthetics", "Complete removable prosthetics", "Orthopedic treatment of periodontal diseases", "Maxillary facial orthopedics" while the emphasis is on working out diagnostic algorithms, emergency treatment and prevention of the main and most common diseases ZSHS Considerable attention is paid to the formation of students' skills in taking an anamnesis, conducting examination and differential diagnosis of ZSHS diseases with various clinical course and their complications, modern approaches to diagnostics are studied in practice, principles of treatment and prevention based on evidence-based medicine, as well as urgent conditions in the practice of orthopedic dentistry. Students take part in diagnostic the treatment process of outpatients and working out the implementation of practical skills in a simulated learning class under the guidance of professors and teaching staff Department of Orthopedic Dentistry and dentists of the Orthopedic Department of dentistry at Danylo Halytskyi LNMU SMC. Familiarization with therapeutic and preventive measures, which are most often used in orthopedics dental practice. Study of the discipline "Industrial medical practice with of orthopedic dentistry" contributes to the formation of a holistic view of the structure and the functioning of the bodies of the ZSHS; deepening of theoretical and practical training, acquisition professional practical skills for independent medical activity.

Structure educational disciplines	Number of credits, hours					Year learnedny semester	type of control
	In total	lectures	Practical occupation	SRS	number of classes		
Subjects:production medical practice from orthopedics stomatology Content modules 1	5 credits / 150 hours	-----	75	75	13	5 curse 9 semestr	Differencial test

**The subject of study of the academic discipline** is the pathological processes of ZSHS, which belong to the competence of orthopedic dentistry, features of their clinical course, basic diagnostic and therapeutic manipulations used in a doctor's practice orthopedic dentist.

**Interdisciplinary connections:** therapeutic dentistry, pediatric dentistry, surgical dentistry, normal anatomy, histology, normal physiology, pathological physiology, topographical anatomy and operative surgery, microbiology, biochemistry, pharmacology, internal diseases, endocrinology, skin-venereal, nervous diseases, otorhinolaryngology, ophthalmology, emergency medicine.

### **1. The purpose and tasks of the educational discipline**

**1.1. The purpose of teaching the educational discipline "industrial medical practice with Orthopedic Dentistry"** is the professional training of a dentist, which involves learning issues of theory and practice from all sections of orthopedic stomatology, starting with organization work of the orthopedic department of the dental polyclinic.

**1.2. The main tasks of studying the discipline "industrial medical practice with of orthopedic stomatology"** has the ability to conduct an orthopedic stomatology examination the patient, to diagnose the main symptoms and syndromes of the pathologies of the gastrointestinal tract, to justify and formulate a preliminary diagnosis; analyze the results of the examination and carry out differential diagnosis, to formulate the final diagnosis of the main diseases, to detect and identify the manifestations of somatic diseases in the oral cavity, determine the principles complex treatment in the clinic of orthopedic dentistry, to detect and identify manifestations somatic diseases in the oral cavity; to carry out orthopedic treatment according to indications dental diseases.

### **1.3 Competencies and learning outcomes.**

According to the requirements of the Higher Education Standard of the discipline "industrial medical practice with of Orthopedic Dentistry" ensures that students acquire the following competencies:

- Integral (ability to solve complex tasks and problems in the field of protection health in the specialty "Dentistry" in professional activity or in the process of study, which involves research or innovation).
- General (ability to abstract thinking, analysis and synthesis; ability to learn and to be modernly educated; ability to apply knowledge in practical situations; skills use of information and communication technologies; search ability, processing and analysis of information from various sources; the ability to detect, pose and solve the problem; the ability to choose a communication strategy; ability to work in a team; skills interpersonal interaction; skills of performing safe activities; the ability to evaluate and to ensure the quality of performed works).
- Special (professional, subject) (collection of medical information about the patient; evaluation of laboratory and instrumental research results; installation clinical diagnosis of dental disease; diagnosis of emergency conditions; determination of the nature and principles of treatment of dental diseases; definition

tactics of managing a dental patient with somatic pathology; performance of medical and dental manipulations; treatment of basic dental diseases; maintaining medical records).

Detailing of competences in the NRK descriptor in the form of the "Competence Matrix":

Marking

NRK – National Framework of Qualifications;

ZK - general competences;

PP – general learning results;

SK - special (professional, subject) competences;

SR - special (professional, subject) learning results;

H - normative type of educational activity in the specialty;

B – selective educational activity.

### **General competencies according to the requirements of the National Qualifications Framework (NQF):**

ZK1	Ability to abstract thinking, analysis and synthesis; the ability to learn and be modernly educated.
ZK2	Knowledge and understanding of the subject area and understanding of the profession.
ZK3	Ability to apply knowledge in practical situations.
ZK4	Ability to communicate in the state language both orally and in writing; the ability to communicate with others language
ZK5	Skills in using information and communication technologies.
ZK6	Ability to find, process and analyze information from various sources.
ZK7	Ability to adapt and act in a new situation; ability to work autonomously.
ZK8	Ability to identify, pose and solve problems
ZK9	Ability to choose a communication strategy.
ZK10	Ability to work in a team.
ZK11	Skills of interpersonal interaction.
ZK12	Ability to act on the basis of ethical considerations (motives).
ZK13	Skills of performing safe activities.
ZK14	Ability to evaluate and ensure the quality of the work performed.
ZK15	Striving to preserve the environment.
ZK16	The ability to act socially responsibly and civically.

Special (professional, subject) competencies according to the requirements of the National Framework qualifications (NRC):

SK1	Collection of medical information about the patient's condition.
SK2	Evaluation of the results of laboratory and instrumental research.
SK3	Establishing a clinical diagnosis of dental disease.
SK4	Diagnosis of emergency conditions.
SK5	Planning and implementation of measures to prevent dental diseases.
SK6	Determination of the nature and principles of treatment of dental diseases.
SK7	Determination of the necessary regime of work and rest, diet in the treatment of dental diseases.
SK8	Determination of the management tactics of a dental patient with somatic pathology.
SK9	Performing medical and dental manipulations.
SK10	Treatment of basic dental diseases.
SK11	Organization of medical evacuation measures.

SK12	Determination of tactics and provision of emergency medical aid.
SK13	Organization and conduct of dental dispensation of persons subject to dispensary supervision.
SK14	Assessment of the impact of the environment on the state of health of the population (individual, family, population)
SK15	Keeping medical records.
SK16	Processing of state, social and medical information.

Detailing of competencies in accordance with the NRK descriptors in the form of "Matrix competencies".

Matrix of competences

№	Competence	Knowledge	Skill	Communication	Autonomy and responsibility
General competences					
1	Ability to abstract thinking, analysis and synthesis; the ability to learn and be modernly educated.	+	+	+	+
2	Knowledge and understanding of the subject area and understanding of the profession.	+	+	+	+
3	Ability to apply knowledge in practical situations	+	+	+	+
4	The ability to communicate in the state language both orally, and in writing; the ability to communicate with others language	+	+	+	+
5	Skills of using 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 discover, pose and decide 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 of performing safe activities.	+	+	+	+
14	Ability to assess and ensure quality performed works.	+	+		+
15	Efforts to preserve the environment environment	+	+	+	+
16	The ability to act socially responsibly and civically conscious.	+	+	+	+
Special (professional, subject) competences					

1	Collection of medical information about the patient's condition.	+	+	+	+
2	Evaluation of the results of laboratory and instrumental research	+			+
3	Establishing a clinical dental diagnosis disease.	+	+	+	+
4	Diagnosis of emergency conditions.	+	+	+	+
5	Planning and implementation of preventive measures dental diseases.	+	+	+	+
6	Determination of the nature and principles of treatment dental diseases.	+	+	+	+
7	Determination of the required regime of work and rest, diet in the treatment of dental diseases	+	+	+	
8	Determination of the tactics of management of a dental patient with somatic pathology.	+	+	+	+
9	Performing medical and dental manipulations.	+	+	+	+
10	Carrying out basic dental treatment diseases	+	+	+	+
11	Organization of medical evacuation measures	+	+	+	+
12	Determination of tactics and provision of emergency medical care help	+	+	+	+
13	Organization and conduct of dental care dispensation of persons subject to dispensary supervision	+	+	+	+
14	Assessment of the impact of the environment on the condition population health (individual, family, population).	+			+
15	Maintenance of medical documentation	+	+	+	+
16	Development of state, social and medical information		+	+	+

### Learning outcomes

Integrative final program learning outcomes, the formation of which contributes academic discipline:

Normative and variable content of training, formulated in terms of results teaching

Learning outcomes in the cognitive sphere.		
SR1	Identify and identify leading clinical symptoms and syndromes; according to standard methods, using previous patient history data, patient examination data, knowledge about a person, his organs and systems, establish a probable nosological or syndromic preliminary clinical diagnosis dental disease.	ZK1ZK5, ZK6, ZK7, ZK8, ZK9, ZK2, ZK3, ZK4, ZK11, ZK12, ZK14, ZK16; SC1, SC3, SC4, SC15.
SR2	Collect information about the general condition of the patient, evaluate the psychomotor and physical development of the patient, the condition of organs maxillofacial area, based on the results of	ZK1, ZK2, ZK3, ZK4, ZK5, ZK6, ZK7, ZK8, ZK9,

	laboratory and instrumental studies to evaluate information on diagnosis	ZK10, ZK11, ZK12, ZK 13, ZK14, ZK16; SC1, SC2, SC3, SC4, SC5, SC6, SC7, SC8, SC11, SC12, SC14, SC15, SC16
SR3	Assign and analyze laboratory, functional and/or instrumental examination of the patient for dental diseases for differential diagnosis diseases	ZK1, ZK2, ZK3, ZK4, ZK7, ZK8, ZK9, ZK10, ZK11, K12, ZK13, ZK14; SK1, SC2, SC15.
SR4	Determine the final clinical diagnosis, following relevant ethical and legal norms, by adopting reasoned decision and logical analysis of the received subjective and objective data of clinical, additional examination, carrying out differential diagnosis under the control of the head physician in the conditions of a medical institution.	ZK1, ZK2, ZK3, ZK4, ZK5, ZK6, ZK7, ZK18, ZK9, ZK10, ZK14, ZK16; ZK1, SC2, SC3, SC4, SC15.
SR5	Establish a diagnosis of emergency conditions under any circumstances (at home, on the street, in a medical institution), in the conditions of state of emergency, martial law, lack of information and limited time	ZK1, ZK2, ZK3, ZK4, ZK5, ZK6, ZK7, ZK8, ZK9, ZK10, ZK11, ZK13, ZK14, ZK15, ZK16; SC1, SC2, SC4, SK15.
SR6	Plan and implement preventive measures for dental diseases among the population to prevent the spread of dental diseases.	ZK1, ZK2, ZK3, ZK4, ZK5, ZK6, ZK7, ZK8, ZK9, ZK10, ZK11, ZK12, ZK13, ZK14, ZK15, ZK16; SC1, SC5, SC13, SC14, SC15, SC16.
SR7	Analyze the epidemiological situation and carry out measures mass and individual, general and local medicinal and non-medicinal prevention dental diseases.	ZK1, ZK2, ZK3, ZK4, ZK5, ZK6, ZK8, ZK9, ZK10, ZK11, ZK12, ZK13, ZK14, ZK15, ZK16; SC1, SC5, SC13, SC14, SC15, SC16.
SR8	Determine the nature of treatment of dental disease by making a reasoned decision according to existing algorithms and standard schemes	ZK1, ZK2, ZK3, ZK5, ZK6, ZK7, ZK8, ZK12, ZK13, ZK14, ZK16; SC1, SC6, SK15.
SR9	Determine the nature and principles of the regime of work, rest and necessary diet in the treatment of dental diseases on the basis of a preliminary or final clinical diagnosis of by making a reasoned decision according to the existing algorithms and standard schemes.	ZK1, ZK2, ZK3, ZK4, ZK5, ZK6, ZK7, ZK8, ZK9, ZK10, ZK11, ZK12, ZK13, ZK15, ZK16; SC1, SC7, SC15.



SR10	Determine the tactics of managing a dental patient with somatic pathology by adopting a substantiated solutions based on existing algorithms and standard schemes.	ZK1, ZK2, ZK3, ZK4, ZK5, ZK6, ZK7, ZK8, ZK10, ZK12, ZK13, ZK14, ZK16; SC1, SC7, SC8, SC15
SR11	Carry out treatment of the main dental diseases according to existing algorithms and standard schemes under the control of the head physician in the conditions of a medical institution.	ZK1, ZK2, ZK3, ZK4, ZK7, ZK8, ZK9, ZK10, ZK11, ZK12, ZK13, ZK14, ZK15, ZK16; SK1, SK9, SK10, SK15.
SR12	Organize treatment and evacuation measures among the population, military personnel, in conditions of emergency situations, including martial law, during the deployed stages of medical evacuation, taking into account the existing system medical evacuation support.	ZK1, ZK2, ZK3, ZK4, ZK5, ZK6, ZK7, ZK8, ZK9, ZK10, ZK11, ZK12, ZK13, ZK14, ZK15, ZK16; SC1, SC11, SK15.
SR13	Determine the tactics of providing emergency medical care, using the recommended algorithms, for any circumstances based on the diagnosis of an emergency condition in the conditions of limited time	ZK1, ZK2, ZK3, ZK4, ZK5, ZK6, ZK7, ZK8, ZK9, ZK10, ZK11, ZK12, ZK13, ZK14, ZK15, ZK16; SC1, SC12, SK15
SR14	Analyze and evaluate state, social and medical information using standard approaches and computer information technologies.	ZK1, ZK2, ZK3, ZK4, ZK5, ZK6, ZK8, ZK10, ZK11, ZK13, ZK14, ZK15, ZK16; SK13, SK15, SK16.
SR15	Assess the impact of the environment on the state of health population in the conditions of a medical institution according to standard methods.	ZK1, ZK2, ZK3, ZK5, ZK6, ZK7, ZK10, ZK11, ZK13, ZK14, ZK15, ZK16; SK13, SC14, SC15, SC16.
Learning outcomes in the emotional sphere.		
ZR1	Form goals and determine the structure of personal activity at based on the result of the analysis of certain social and personal needs	ZK1, ZK2, ZK3, ZK4, ZK5, ZK6, ZK7, ZK8, ZK9, ZK10, ZK11, ZK12, ZK13, ZK14, ZK15, ZK16; SC1, SC5, SC6, SC7, SC8, SC9, SC10, SC11, SC12, SC13, SK14.
ZR2	Follow a healthy lifestyle, use techniques of self-regulation and self-control.	ZK1, ZK2, ZK3, ZK5, ZK6, ZK11,

		ZK12, ZK13, ZK15, ZK16; SC5, SC14.
ZR3	To be aware of and be guided in one's activities civil rights, freedoms and obligations, to raise general educational cultural level.	ZK4, ZK5, ZK6, ZK9, ZK10, ZK11, ZK12, ZK13, ZK14, ZK15, ZK16; SC5, SC13, SC14, SC16.
ZR4	Comply with the requirements of ethics, bioethics and deontology in your professional activity.	ZK2, ZK3, ZK4, ZK9, ZK10, ZK11, ZK12, ZK13, ZK15, ZK16; SC1, SC5, SC7, SC9, SC10, SC11, SC12, SC13, SC14, SC15, SK16.
ZR5	Organize the required level of individual safety (own and the persons they care about) in case of typical dangerous situations in the individual field activity	ZK1, ZK2, ZK3, ZK5, ZK9, ZK10, ZK11, ZK12, ZK13, ZK14, ZK15, ZK16; SK1, SC5, SC6, SC9, SC10, SC11, SC12, SC13, SC14, SK15.
Learning outcomes in the psychomotor field.		
SR16	Perform medical manipulations on the basis of previous and/or final clinical diagnosis.	ZK1, ZK2, ZK3, ZK7, ZK9, ZK10, ZK11, ZK13, ZK14, ZK15; SC9, SC10, SC11, SK12.
SR17	Perform medical dental manipulations on the basis preliminary and/or final clinical diagnosis.	ZK1, ZK2, ZK5, ZK6, ZK8, ZK9, ZK10, ZK11, ZK13, ZK14, ZK15; SC9, SC10, SK11, SK12.
SR18	Perform emergency medical aid manipulations, using standard schemes, under any circumstances on based on the diagnosis of an emergency.	ZK1, ZK2, ZK3, ZK4, ZK5, ZK6, ZK8, ZK9, ZK10, ZK11, ZK13, ZK14, ZK15, ZK16; SC9, SC10, SC11, SK12.

**Learning outcomes for the discipline:** professional training of a dentist, which involves mastering the questions of theory and practice from the sections "Propaedeutics of orthopedics dentistry", "Fixed prosthetics", "Partial removable prosthetics", "Full removable prosthetics", "Orthopedic treatment of periodontal diseases", "Maxillofacial orthopedics"; the ability to conduct an examination of an orthopedic dental patient, substantiate and formulate a preliminary diagnosis; analyze the results of the examination and carry out differential diagnosis, formulate a final diagnosis, identify and to identify the manifestations of somatic diseases in the oral

cavity, to determine the principles comprehensive treatment, identify various clinical options and complications, know measures primary and secondary prevention of orthopedic dental diseases.

**2. Information volume of the academic discipline.** 4 ECTS credits of 120 hours are assigned to the study of the academic discipline.

**3. Thematic plan of practice**

№	THEME
1	Orthopedic treatment using crown inserts and veneers. Preparation of solids dental tissues for veneers, in-lay, on-lay, over-lay tabs.
2	Preparation of hard tissues of teeth for solid metal, metal-plastic, metal-ceramic, plastic, ceramic crowns.
3	Preparation of hard tissues of teeth for root-crown tab. fingerprinting for production of root and crown tabs using one- and two-stage methods
4	Dentition defects are included. Orthopedic treatment using bridges prostheses Preparation of hard tissues of supporting teeth for bridge prostheses.
5	Removal of full anatomical, partial impressions from the upper, lower, molars and jaws from teeth using alginate impression material. Features of disinfection impressions from alginate material. Casting models of jaws.
6	Removal of impressions using silicone impression material. Removal method imprint A- and C- silicone. Techniques for removing two-layer prints, one- and two- staged method. Features of disinfection of impressions made of silicone material. Casting models of jaws.
7	Making a root-crown tab by the direct method. Prognostic modeling of the anatomical shape of tooth crowns (wax-up).
8	Fixation of the central ratio of the tooth rows in groups I and II according to Betelman according to with the help of silicone dental blocks and with the use of occlusive spoons.
9	Fixation of the central ratio of the jaws in III and IV groups according to Betelman using wax bases with biting rollers. Construction of prosthetic plane and its importance in removable prosthetics
10	Determining the color of teeth. Fitting and fixation of fixed structures of prostheses. Features of fixation on temporary and permanent cement. Features of kneading fixing cements of different groups.
11	Fitting and applying removable structures of prostheses. Terms and scope of corrections partial, full removable and fixed prostheses. Adaptation processes during use of removable structures of prostheses.
12	Removal of an artificial crown.
13	Final lesson (differential assessment).

Lectures are not planned in the working curriculum.

**4. Thematic plan of students independent work**

№	THEME
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1	Materials and manufacturing technologies of various types of veneers and inlays.
2	Materials and clinical and laboratory stages of manufacturing different types of crowns.
3	Standard pin designs. Classification, features of use.
4	Types of bridge prostheses. Clinical and laboratory stages of bridge-like manufacturing prostheses.
5	Imprint spoons, their types. Physico-chemical properties of alginate impressions materials
6	Silicone impression materials. Classification, properties
7	Methods of making stump-root tabs
8	Clinical picture of partial loss of teeth. Classification of dental defects. Groups dentition defects to determine central occlusion according to Betelman
9	Basic laws of articulation and occlusion.
10	Classification of cements for fixation of fixed orthopedic structures. The main ones characteristics of different groups of cements
11	Clinical and laboratory stages of manufacturing various types of partial removable prostheses
12	Errors and complications in the manufacture of stump-root tabs
13	Errors and complications in the manufacture of crowns and bridge-like prostheses

**Individual tasks** are not planned in the working curriculum.

### **5. Teaching methods.**

The educational process at the Department of Orthopedic Dentistry is organized according to the following regulatory documents:

- Law of Ukraine "On Higher Education" dated July 1, 2014 No. 1556-VII;
- Provisions on internships for students of higher educational institutions of Ukraine Approved by the order of the Ministry of Education of Ukraine dated April 8, 1993 No. 93;
- Resolution of the Cabinet of Ministers of Ukraine dated 04.29.2015 No. 266 "On approval of the list fields of knowledge and specialties for which higher education graduates are trained education";
- order of the Ministry of Education and Culture of Ukraine No. 1151 dated 06.01.2015 "On the peculiarities of the introduction the list of fields of knowledge and specialties for which training is carried out applicants of higher education, approved by the resolution of the Cabinet of Ministers of Ukraine dated 04.29.2015 No. 266"; Order of the Ministry of Education and Culture of Ukraine No. 47 dated 01.26.2015 "On special formation of educational plans", registered in the Ministry of Justice of Ukraine 04.02.2015 under No. 132/26577;
- letter of the Ministry of Health of Ukraine dated July 25, 2016 No. 08.01-30/19087;

- the order of the Danylo Halytskyi LNMU rector dated June 2, 2016 No. 1604 "About approval of educational plans";
- provisions on the organization of the educational process in Lviv National Danylo Halytskyi Medical University, approved by the academic council of LNMU Danylo Halytskyi 18.02.2015 protocol No. 1-VR;
- "Regulations on practice at the Lviv National Medical University named after Danylo Halytskyi", adopted by the decision of the Academic Council of the LNMU named after Danylo Halytskyi (protocol No. 8-BP dated September 16, 2015)
- the curriculum of the discipline "Industrial medical practice with orthopedic dentistry" for students of the II, IV and V courses of dentistry faculty

In accordance with the curriculum of industrial medical practice at 5 course is provided when the student has acquired knowledge of the main clinical disciplines (therapeutic dentistry, orthopedic dentistry, surgical dentistry), with which the industrial practice program is integrated. In turn, practice forms the foundations continuation of the student's further study of clinical disciplines – therapeutic dentistry, orthopedic dentistry, surgical dentistry, which involves integration with these disciplines "vertically" and formation of skills to apply knowledge in the process further education and professional activities.

Industrial medical practice of students of the 5th year for a stomatologist-orthopedic - 2.5 weeks at the Department of Orthopedic Stomatology and in the Orthopedic Department of Stomatology Danylo Halytskyi Medical Center of LNMU. Industrial practice in orthopedic dentistry is conducted in the 9th semester.

Practice provides students with independent mastery of practical skills according to educational professional training program for specialists (OPP) and educational and qualification characteristics (OKH), which is controlled by the heads of production practice from the Department of Orthopedics stomatology In order to master the manual skills of providing orthopedic dental care, along with studying theoretical issues, students practice manipulations in the classroom of simulation training on patient simulators, under the guidance of and under the control of the immediate supervisor from the Department of Orthopedic Dentistry independently conduct an examination of patients with various pathological processes of ALS, related to competencies of orthopedic dentistry, independently study dental symptoms diseases of the orthopedic profile, acquire skills in maxillofacial diagnostics disorders and diseases and their treatment. Current practical activities of students are evaluated direct supervisors from the Department of Orthopedic Dentistry.

The final control of the assimilation of industrial medical practice takes place in the last day of practice after its completion. The control is carried out by the teachers of the department orthopedic stomatology.

## **6. Control methods.**

Forms of control and the evaluation system are carried out in accordance with the requirements of the program industrial medical practice for students of the 5th year of the dental faculty.

The assessment for practice consists of the sum of points for the student's performance of practical skills and points for the final control. Performance of practical skills is checked daily the direct supervisor of practice and verifies their implementation in the student's practice diary.

Current control is carried out in accordance with specific objectives. One of the species students' activities and their control by the supervisor from the Department of Orthopedic Dentistry there is a diary of production practice (see appendix 1). The diary is the main document for the period of production practice, including its protection. Students are obligated for the internship period write down in the diary every day everything done during the day. In it, in general socially useful work is displayed in the sequence (issuance of sanitary bulletins, writing essays, holding conversations in organized groups, etc.).

The student must submit the diary daily for verification and signature to the immediate supervisor to the head of the Department of Orthopedic Dentistry. After completing the internship, the student fills out a final report on the work performed. After the end of industrial practice, drawing up digital and text reports to the student the description and review of the diary are issued and signed by the immediate supervisor production practice (see Appendix 1). When writing a description and review, the following indicators should be displayed: level theoretical training, mastering practical skills, observing the basics of deontology and ethics, the student's attitude to mastering practical skills. The characteristic should be certified by the seal of the department where the practical training was carried out. Availability of filled according to the form and certified by the signature of the direct supervisor of the diary and of the final report is mandatory for the admission of the student to the final class.

The following evaluation system was used in the program.

**7. Current assessment.** The head of the practice base analyzes and implements daily control of students' work in the classroom of simulation training and the department of orthopedics dentistry (the student must not have absences), the quality of keeping a diary, the quality of mastery practical skills defined by the list, application of the principles of ethics and deontology in a doctor's practice. Before demonstrating a skill or practical skill, the student describes in detail and justifies the methodology of its implementation to the direct supervisor from the department. After the description manipulation, the student may be allowed to perform it on the patient simulator and/or in clinic under the control of the manager.

The current assessment of skills and practical skills is carried out as follows:

№	List of practical skills	Points (from 3 to 5)
1	Demonstrate the ability to perform extra-oral and intra-oral examination the patient	
2	Demonstrate the ability to collect complaints and history.	
3	Demonstrate the ability to fill out medical documentation.	
4	Preparation of hard tooth tissues for veneers	

5	Preparation of hard tooth tissues for in-lay tabs	
6	Preparation of hard tooth tissues for on-lay tabs	
7	Preparation of hard tooth tissues for over-lay tabs	
8	Preparation of hard tooth tissues for a stamped metal crown.	
9	Preparation of hard tissues of teeth for a solid metal crown.	
10	Preparation of hard tooth tissues for a metal-ceramic crown.	
11	Preparation of hard tissues of teeth for a root-crown tab.	
12	Preparation of hard tissues of supporting teeth for a bridge prosthesis.	
13	Removal of a two-layer impression by a one-step method using C- silicone material.	
14	Removal of a two-layer impression by a two-stage method using C-silicone material	
15	Taking impressions for the production of root and crown tabs	
16	Fixation of the central ratio of tooth rows in I and II groups according to Betelman with the help of silicone dental blocks	
17	The method of fixing the central ratio of the jaws in group III according to Betelman with the help of wax bases with biting rollers.	
18	The technique of fixing the central ratio of the jaws in group IV according to Betelman with the help of wax bases with biting rollers.	
19	Production of a root-crown tab by the direct method	
20	Prognostic modeling of the anatomical shape of tooth crowns	
21	Construction of a prosthetic plane on a wax base with an upper bite roller jaws	
22	Removal of full anatomical impressions from jaws with teeth using alginate imprint material.	
23	Removal of impressions from buzz-toothed jaws with the help of an alginate impression material	
24	Removal of an artificial crown.	
The sum of points for learning practical skills (72-120):		

5 points - the student who presented the proposed manipulation orally or in writing and thoroughly described it at a sufficiently high theoretical level, and also demonstrated it assimilation of practical skills in full.

4 points - the student who presented the proposed manipulation orally or in writing and gave it a theoretical description, but made minor mistakes. Amount demonstrated practical skills was sufficient.

3 points - the student who presented the proposed manipulation orally or in writing and gave it a theoretical description, but made significant mistakes. A student can demonstrate practical skill only at the most basic level.

A skill is considered not credited if the student did not present it orally or in writing the proposed manipulation and/or did not provide it with a sufficient theoretical description. The student did not learn practical skill in the process of production practice.

**8. The form of the final control of study success - differentiated assessment.**

The students submit the final control on the last day of practice to the committee, to the composition which includes practice managers from the Department of Orthopedic Dentistry. To the protection of practice a student who has 100% completed the production program is admitted to the final class practices, provided reasonable answers to questions about the content of the diary, and typed the minimum number of points for the current internship (72 points), presented a report on practice and positive characteristics of the general manager from the practice base. Evaluation criteria of final control from practice: The final class of industrial medical practice of 5th year students provides passing the test control, consisting of 80 practically oriented tests tasks The number of points for the final lesson is set according to the existing provision from 50 up to 80 points.

**9. Scheme of accrual and distribution of points received by students:**

The assessment for practice consists of the sum of points for the student's performance of practical skills, which are checked by the direct supervisor from the practice base (maximum 120 points – minimum 72 points), and points for the final control, which are issued during the conduct differentiated assessment (maximum 80 points - minimum 50 points). Points from the discipline are independently converted both to the ECTS scale and to the 4-point scale. Points of students studying in one specialty are ranked according to the ECTS scale so:

ECTS assessment	Statistical indicator
A	The best 10% of students
B	the next 25% of students
C	The next 30% of students
D	The next 25% of students
E	Last 10% of students

Discipline points for students who have successfully completed the program are converted to traditional 4-point scale according to absolute criteria, which are given below in the table:

Discipline points	Score for 4 points scale
From 170 to 200 points	5
From 140 to 169 points	4
From 122 to 139	3
122 below	2

The assessment for practice is entered by the supervisor from the University in the diary, credit student's book and credit and examination information. Within three days after the end practice manager from the University submits a report to the relevant dean's office, a report on practice - to the practice department of the University. The practice diary is kept on department for 1 year.



**10. Methodological support:** notes, extended plans and multimedia lecture presentations, plans for practical classes, independent work, lists of questions, tasks and cases for current, final and self-monitoring of students' knowledge and skills, lists and algorithms for performing practical skills, tests for self-control in accordance with the topics of practical classes, tests for assessment of entrance and exit level of knowledge on the topics of practical training, a diary of industrial practice, Guidelines.

**List of practical skills:**

1. Preparation of hard tooth tissues for veneers.
2. Preparation of hard tooth tissues for in-lay tabs.
3. Preparation of hard tooth tissues for on-lay tabs.
4. Preparation of hard tooth tissues for over-lay tabs.
5. Preparation of hard tissues of teeth for a solid metal crown.
6. Preparation of hard tooth tissues for a metal-plastic crown.
7. Preparation of hard tooth tissues for a metal-ceramic crown.
8. Preparation of hard tooth tissues for a plastic crown.
9. Preparation of hard tooth tissues for a ceramic crown.
10. Preparation of hard tissues of teeth for root-crown tab.
11. Preparation of hard tissues of supporting teeth for bridge prostheses.
12. Removal of full anatomical and partial impressions from the upper jaw with the help of alginate impression material. Disinfection of prints. Casting models of jaws.
13. Removal of full anatomical and partial impressions from the lower jaw. Disinfection of prints. Casting models of jaws.
14. Removal of full anatomical, partial impressions from buzz-toothed jaws. Disinfection of prints. Casting models of jaws.
15. One-step impression removal using silicone impression material methodology. Disinfection of prints. Casting models of jaws.
16. Removal of impressions using silicone impression material in two stages methodology. Disinfection of prints. Casting models of jaws.
17. Taking impressions for the production of root-crown tabs using a one-step method.
18. Taking impressions for the production of root and crown tabs using a two-stage method.
19. Fixation of the central ratio of the tooth rows in groups I and II according to Betelman according to with the help of silicone dental blocks and with the use of occlusive spoons.
20. Fixation of the central ratio of the jaws in group III according to Betelman with the help of wax bases with biting rollers.
21. Fixation of the central ratio of the jaws with the IV group according to Betelman with the help of wax bases with biting rollers. Construction of the prosthetic plane and its significance in removable prosthetics.
22. Determining the color of teeth. Fitting and fixation of fixed structures of prostheses.

23. Fitting and applying removable structures of prostheses.
24. Production of a root-crown tab by the direct method.
25. Removal of an artificial crown.

**A list of questions that a student should study in order to learn industrial topics medical practice in orthopedic dentistry**

2. Principles of organization of dental care for the population of Ukraine.
3. Organization of the work of the orthopedic department (office) of the dental polyclinic.
4. Sanitary and hygienic requirements for the orthopedic department (cabinet) of the stomatologist polyclinics.
5. Equipment, medical documentation of the orthopedic dental office (department) profile.
6. Concepts of aseptic, disinfection, sterilization, their methods.
7. General principles and methods of asepsis.
8. Methods of processing tools (disinfection and sterilization), their storage.
9. General principles and methods of antiseptics.
10. Ways of transmission of infection in the dental orthopedic office.
11. Subjective examination of an orthopedic dental patient (complaints, history disease, life history).
12. Methodology for examining the general condition of an orthopedic dental patient.
13. Methodology of local (extra-oral and intra-oral) dental examination the patient
14. Additional methods of examination (electroodontometry, radiography, morphological, microbiological, functional studies).
15. Tools for examining a dental patient with an orthopedic profile.
16. Tools for preparation of hard tissues of teeth.
17. Tools for processing prosthetic structures.
18. Tools for removing crowns.
19. Tools for gum retraction.
20. Materials for gum retraction.
21. Tools for removing prints.
22. Techniques for selecting an impression spoon.
23. Classification of print materials.
24. Local complications when removing an impression from the lower jaw, their causes.
25. Local complications when removing an impression from the upper jaw, their causes.
26. Classification of prints
27. Biomechanics of lower jaw movements... Occlusion and articulation, types of occlusion, factors of occlusion
28. Central occlusion, occlusal contacts are normal. Classification of antagonizing surfaces according to Jenkelson, concepts of stable and unstable occlusal contacts
29. Devices that reproduce the movements of the lower jaw - classifications, areas of application

30. Etiology of defects of the crown part of teeth. Defect classifications, Milikevich index. Types of orthopedic structures for replacing defects of the crown part of teeth, indication
31. Artificial crowns - indications, classifications, comparative characteristics. Materials and technologies for manufacturing artificial crowns
32. Preparation of the oral cavity for prosthetics. Requirements for teeth used as support for non-removable orthopedic structures
33. Indications for depulping of supporting teeth. Indications for reinforcement of supporting teeth pin structures
34. Rules for preparation of teeth for fixed orthopedic structures, safety measures, methods control of the depth of preparation of solid tissues
35. Protection of welcome teeth during and after preparation. Provisional structures, dentine sealants
36. Complications during and after tooth preparation - causes, consequences, ways of prevention
37. Methods of preparing teeth for artificial crowns
38. Marginal adaptation of artificial crowns, variants of periorbital preparation, types of ledges
39. Gum retraction, types, methods, indications
40. Stamped metal crowns - indications and contraindications, clinical and laboratory stages production
41. Solid metal crowns - indications and contraindications, clinical and laboratory manufacturing stages
42. One-piece combined crowns - indications and contraindications, clinical and laboratory manufacturing stages
43. Provisional crowns - indications, purpose of use, types. Materials for manufacturing provisional crowns
44. Bridge-like prostheses - indications, classifications, materials and manufacturing methods. Peculiarities of preparation of supporting teeth. Comparative characteristics of solid cast and stamped-soldered structures
45. Biomechanics of bridge prostheses, structural features, types of supporting elements. The relationship of the intermediate part to the alveolar process
46. Factors that ensure fixation of fixed prostheses.
47. Indications for temporary fixation of non-removable structures. Materials for temporary fixation orthopedic structures. Provisional cements
48. Zinc - phosphate cements - composition, physical and chemical properties, indications and methods application
49. Glass ionomer cements - composition, physical and chemical properties, indications and methods application
50. Composite cements - composition, physical and chemical properties, indications and methods of application

51. Errors and complications in obtaining prints. Causes, consequences, ways of prevention
52. Errors and complications during tooth preparation. Causes, consequences, ways of prevention
53. Errors and complications at the clinical and laboratory stages of manufacturing various types crowns and bridge-like prostheses
54. Errors during design verification and cementing of fixed orthopedics constructions
55. Structures of special equipment, their constituent parts. Features of the transformation of masticatory pressure various types of special equipment
56. Partial removable lamellar prostheses - indications, clinical stages of manufacture
57. Bügel prostheses - indications, construction planning depending on clinical conditions. Selection of abutment teeth, requirements, preparation
58. Planning the construction of prostheses while preserving single teeth on the jaws
59. Limits of the bases of partial removable lamellar prostheses on the upper and lower jaws
60. Variants of the location of the arches of the brace prostheses on the upper and lower jaws. Parameters arc
61. Groups of dentition defects according to Betelman, clinical characteristics
62. The method of determining and fixing the central ratio of the jaws in the second group defects according to Betelman
63. The method of determining and fixing the central ratio of the jaws in the third group defects according to Betelman. Methods of determining the occlusal height. Methods of determination of the central ratio of the jaws
64. Method of fixing central occlusion with occlusion blocks and gypsum blocks. Technology production of occlusive rollers, requirements for rollers
65. Methodology of hot and cold methods of fixing the central ratio according to with the help of occlusive rollers
66. Errors in determining and fixing the ratio of the jaws
67. Techniques for applying and correcting the prosthesis, recommendations for the patient on the care of the prosthesis. 34. Phases of adaptation to removable prostheses according to Kurlyandskyi
68. Recommended terms of use of various types of special permits. Indications for replacement of prostheses. Rebased of removable prostheses - indications, methods, materials
69. Factors affecting the bases of prostheses and prosthetic materials on the tissues of the prosthetic bed. Classifications of prosthetic stomatitis
70. Types of pin structures. Features of standard and individual application pin designs
71. Methods of making stump-root inserts.
72. Errors and complications in the manufacture of stump-root inserts

#### **14. Summary of practice**

Summary of practice is carried out in the presence of all reporting documents, provided by the practice program, and the characteristics of the student's production activities during practice, signed by the immediate and general manager of the practice base. The grade for practice is taken into account when considering questions about the appointment of a scholarship on a par with grades for exams and other differentiated assessments. Students who did not complete the practice program without valid reasons received unsatisfactory grade for practice and did not liquidate academic debt before the start next semester, are deducted from the University. The results of the practice are heard and discussed annually at the department meeting, the specialized methodical commission, the Academic Council of the Faculty and the University.

### **15. Recommended literature Main (Basic):**

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4. Makeev V.F., Stupnytskyi R.M. Theoretical foundations of orthopedic stomatology. - Lviv, 2010. - 394 p.
5. Hasyuk P.A., Kostenko E.Ya., Machogan V.R., Rosolovska S.O., Vorobets A.B., Radchuk V.B. StudBook with orthopedic stomatology. Ternopil-Uzhgorod. 2018. - 369 p.
6. Rozhko M.M., Nespyradko V.P., Mykhaylenko T.N. etc. Prosthetic equipment. - K.: Book-plus, 2016. – 604 p.
7. Dentistry. Textbook. In 2 books - Kn. 1 / M.M. Rozhko, Z.B. Popovich, V.D. Kuroyedova, etc.; under the editorship Prof. M.M. Rozhka. - K.: VSV "Medicine", 2013. - 872 p.
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11. O. O. Fastovets Fixed dental prosthetics: educational and methodological manual / O. O. Fastovets, R. A. Kotelevskyi, S. S. Kobylyak // Dnipro: DMA. - 2013. - 212 p.

12. Golyk V.P. All-ceramic restorations of hard tooth tissues. Teaching manual / V. P. Golik; I. V. Yanishen, A. Yu. Nikonov, I. O. Pereshivaylova // Kh.: KhNMU. - 2016. - 14 p.
13. Golyk V.P. Replacement of defective tooth tissues with pin designs. Indications Clinical and laboratory production stages. Teaching manual / V. P. Golik; O. S. Maslovsky, I. V. Yanishen, O. O. Berezhna, A. V. Pohorila // Kh.: KhNMU. - 2015. - 27 p.
14. Hasyuk A.P. Human Odontology / A.P. Hasyuk, P.A. Hasyuk, T.V. Novoseltseva // Saarbrucken: LAMBERT Academic Publishing. - 2015. - 181 p.
15. Hasyuk P. A. Technological aspects of manufacturing orthopedic structures // P. A. Hasyuk, D. M. Korol, S.O. Rosolovska, L.S. Korobeynikov, V.B. Radchuk, R.V. Kozak // Ternopil: FOP Parkhin R. A. - 2016. - 140 p.
16. Nidzelskyi, M. Ya. Speech rehabilitation in dental prosthetics / M. Ya. Nidzelskyi, V.P. Chikor; Ministry of Health of Ukraine, UMSA, Department of Postgraduate Education of Doctors orthopedic dentists. – Poltava, 2017. – 122
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