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**Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
NAMED AFTER PATRICE LUMUMBA
RUDN University
Institute of Medicine**

educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

Gnathology and Temporo-Mandibular Joint's Functional Diagnostics

course title

Recommended by the Didactic Council for the Education Field of:

31.05.03 Dentistry

field of studies / speciality code and title

The course instruction is implemented within the professional education programme of higher education:

Dentistry

higher education programme profile/specialisation title

1. COURSE GOAL(s)

The goal of the course «Gnathology and functional diagnostics of temporomandibular joint» is to train a dentist enable to diagnose and plan the orthopedic stage of complex treatment of patients with the diseases of the temporomandibular joint, considering the individual characteristics of the disease and the patient's age.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the course (module) «Gnathology and Temporo-Mandibular Joint's Functional Diagnostics» is aimed at the development of the following competences /competences in part: (GC)-1, (GPC)-5, 6, (PC)- 1,2,6.

Table 2.1. List of competences that students acquire through the course study

Competence code	Competence descriptor	Competence formation indicators (within this course)
GC-1	Being able to implement critical analysis of problem situations based on systems approach, develop an action strategy.	GC-1.1. Analyzing the problem situation as a system identifying its components and links between them.
GPC 5	Being able to examine patients to determine a diagnosis when solving professional tasks	GPC-5.1. Gathering anamnesis by analyzing the patient's complaints, making a physical examination at a dental appointment.
		GPC-5.2. Formulating a preliminary diagnosis and drawing up a plan for laboratory and instrumental examinations of a dental patient.
		GPC-5.3. Compiling medical documentation for a dental patient in accordance with regulatory requirements.
		GPC-5.8. Conducting differential diagnosis with other diseases/conditions, including the urgent ones.
		GPC-5.9. Making a diagnosis based on the current international statistical classification of diseases and health problems.
GPC-6	GPC 6 Being able to prescribe non-drug and drug treatment, monitor its efficacy and safety when solving professional tasks	GPC-6.1. Developing a plan for dental disease treatment taking into account the diagnosis, age and clinical picture in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the medical care standards.
		GPC-6.2. Selecting medical products (including

Competence code	Competence descriptor	Competence formation indicators (within this course)
		dental materials) for drawing up a comprehensive plan for dental disease treatment. Following up the treatment of a patient.
PC-1	PC-1. Being able to make an examination of a patient in order to determine a diagnosis.	<p>PC-1.1. Making an initial examination and/or reexamination of a patient in order to make a preliminary diagnosis.</p> <p>PC-1.2. Receiving information from patients (their relatives/legal representatives); conducting a questionnaire survey of patients regarding their general health status; identifying concomitant diseases in order to make a preliminary diagnosis.</p> <p>PC-1.3. Detecting if patients have dentoalveolar, facial anomalies, deformities and prerequisites for their development, defects in the crowns of teeth and dentition on the basis of the patient examination; laboratory, instrumental, and additional examinations in order to make a preliminary/final diagnosis.</p> <p>PC-1.4. Detecting if patients have risk factors for oncopathology (including various background processes, precancerous conditions) based on laboratory, instrumental and additional examinations in order to make a preliminary/final diagnosis.</p> <p>PC-1.5. Making a preliminary/final diagnosis based on the patient examination; laboratory and instrumental examinations.</p>
PC-2	PC-2. Being able to prescribe, monitor the efficacy and safety of non-drug and drug treatment	PC-2.6. Providing orthopedic treatment for persons with defects in teeth, dentition within the temporization procedure, rehabilitation of single defects in the dentition, dental prostheses of up to three units (excluding dental implants prosthetics), partial and complete removable laminar denture using modern treatment methods approved for use in medical practice.
PC-6	PC-6. Being able to analyze and present in public medical information based on evidence-based	PC-6.1. Searching for medical information based on evidence-based medicine, interpreting data from scientific publications and/or preparing a presentation to make medical information, the results of scientific research

Competence code	Competence descriptor	Competence formation indicators (within this course)
	medicine, participate in scientific research, introduce new methods and techniques aimed at protecting public health	public.

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The course refers to the core/variable/elective* component of (B1) block of the higher educational programme curriculum.

* - Underline whatever applicable.

Within the higher education programme students also master other (modules) and / or internships that contribute to the achievement of the expected learning outcomes as results of the course study.

Table 3.1. The list of the higher education programme components/disciplines that contribute to the achievement of the expected learning outcomes as the course study results

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
CC1	Being able to implement critical analysis of problem situations based on systems approach, develop an action strategy.	Dentistry" (simple prosthetics) Prosthodontics of edentulous patient Prosthodontics (Complex Prosthetics)	Maxillofacial prosthetics
GPC 5	Being able to examine patients to determine a diagnosis when solving professional tasks	Cariology and the disease of hard dental tissues. "Dentistry" (simple prosthetics) Prosthodontics of edentulous patient Prosthodontics (Complex Prosthetics)	Maxillofacial prosthetics
GPC 6	Being able to prescribe non-drug and drug treatment, monitor its efficacy and safety when solving professional tasks	Cariology and the disease of hard dental tissues. "Dentistry" (simple prosthetics) Prosthodontics of edentulous patient Prosthodontics (Complex Prosthetics)	Maxillofacial prosthetics

PC 1	Being able to make an examination of a patient in order to determine a diagnosis	Cariology and the disease of hard dentaltissues. "Dentistry" (simple prosthetics) Prosthodontics of edentulous patient Prosthodontics (ComplexProsthetics)	Maxillofacial prosthetics
PC 2	Being able to prescribe, monitor the efficacy and safety of non-drug and drug treatment	Cariology and the disease of hard dentaltissues. "Dentistry" (simple prosthetics) Prosthodontics of edentulous patient Prosthodontics (ComplexProsthetics)	Maxillofacial prosthetics
PC 6	Being able to analyze and present in public medical information based on evidence-based medicine, participate in scientific research, introduce new methods and techniques aimed at protecting public health	Cariology and the disease of hard dentaltissues. "Dentistry" (simple prosthetics) Prosthodontics of edentulous patient Prosthodontics (ComplexProsthetics)	Maxillofacial prosthetics

* To be filled in according to the competence matrix of the higher education programme.

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the course "**Gnathology and Temporo-Mandibular Joint's Functional Diagnostics**" is 2 credits (72 academic hours).

Table 4.1. Types of academic activities during the periods of higher education programme mastering

Type of academic activities	Total academic hours	Semesters/training modules
		10
Contact academic hours	51	51
<i>including:</i>		
Lectures (LC)		
Lab work (LW)	51	51
Seminars (workshops/tutorials) (S)		
Self-studies	18	18
Evaluation and assessment (exam/passing/failing grade)	3	3
Course workload	academic hours	72
	credits	2

* To be filled in regarding the higher education programme correspondence training mode.

5. COURSE CONTENTS

Table 5.1. Course contents and academic activities types

Course module title	Course module contents (topics)	Academic activities types
Section 1. Fundamentals of clinical gnathology (biomechanics of the dentition system). Morpho functional analysis in gnathology.	Topic 1.1. Fundamentals of clinical gnathology. Morphological and functional elements of the temporomandibular joint. Biomechanics of the masticatory apparatus. The occluders and articulators, face-bows. Methods of installing models in the articulator and adjusting it to the individual function of the patient.	LW
	Topic 1.2. Occlusography. Occlusal markers: spray, paper, foil. Computer-based methods.	
	Topic 1.3. Digital methods. Axiography and functiography, diagnostic value. Computer methods of diagnostics of dentition.	
Section 2. Diagnostics of pathology of the temporomandibular joint and	Topic 2.1. Etiology, clinic, pathogenesis of TMJ diseases. Classification of TMJ diseases requiring prosthetic treatment. Functional state of the chewing and speech apparatus in TMJ diseases, hardware methods for examining patients with TMJ diseases. Differential diagnosis.	LW
	Topic 2.2. Clinical methods for diagnosing musculo-articular dysfunction	

masticatory muscles

Topic 2.3. The functional state of the masticatory-speech apparatus in TMJ diseases, hardware methods for examining patients with TMJ diseases. Differential Diagnosis

Section 3. Prosthetic treatment of patients with pathology of the temporomandibular joint and masticatory muscles	Topic 3.1. Basic principles of complex treatment of patients with diseases of the temporomandibular joint and masticatory muscles. Medical and diagnostic devices. The types of occlusal splints.	LW
	Topic 3.2 Tactics of management of patients with pathology of occlusion, TMJ, masticatory muscles. Stages of complex treatment.	

* - to be filled in only for **full**-time training: *LC* - lectures; *LW* - lab work; *S* - seminars.

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom equipment and technology support requirements

Classroom type	Equipment of the classroom	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
Self-studies	An auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to the EIOS.	
Lab-work	<p>An auditorium for laboratory work, individual consultations, current control and intermediate certification, equipped with a set of specialized furniture: a double student desk -14, a chair for a teacher, a metal cabinet for storing equipment, a built-in cabinet for materials and tools -6 pcs, a sink, a mobile a trash can with a lid of at least 200 liters, a glass cabinet for visual aids, a four-section metal safe for storing tips and burs.</p> <p>Technical means used to present educational information: LCD panel, personal computer-monoblock, video camera on a tripod, sets of educational and visual aids (types of dentures), radiographs of MRI and CBCT images on paper and on CD, providing thematic illustrations.</p>	<ol style="list-style-type: none"> 1. Perforated metal impression tray, upper arch, sizes №3, №2, №1 – 14 units 2. Perforated metal impression tray, lower arch, sizes №3, №2, №1 – 14 units 3. Silicone bowl for mixing alginate and plaster – 14 units 4. Spatula for mixing alginate – 14 units 5. Plaster knife – 14 units 6. Electronic household scales, 500 g capacity – 7 units 7. Articulator – 14 units 8. Facebow – 14 units 9. Dental laboratory handpiece – 14 units 10. Straight handpiece attachment – 14 units 11. Dental curing light – 14 units 12. All-in-one computer or laptop – 14 units 13. Vernier caliper – 14 units 14. Intraoral scanner – 2 units 15. Mechanical axiograph with labels – 1 unit 16. Electronic axiograph – 1 unit 17. "Kolibri" electromyograph – 1 unit 18. TENS unit – 1 unit 19. "BIOPAC" system – 1 unit

		<p>20. "BIOPAC" software – 14 licenses</p> <p>21. Camera with mirrors and retractors – 1 unit</p> <p>22. "Infodent Clinic" software – 14 licenses</p> <p>23. "Avantis 3D" software – 14 licenses</p> <p>24. "Kadiaks" (Gamma Dental) software – 14 licenses</p> <p>25. "T-Scan" digital occlusion analysis system – 1 unit</p> <p>26. "OccluSense" (Bausch) digital occlusion analysis system – 2 units</p> <p>27. iPad for OccluSense® application – 2 units</p> <p>28. Vacuum former – 1 unit</p> <p>29. Vacuum mixer – 1 unit</p> <p>30. Trimmer – 1 unit</p> <p>31. Plaster mixing station with sink and plaster trap – 1 unit</p> <p>32. Plaster mixing station for 14 workstations – 1 unit</p> <p>33. Cartridge gun for composite mixing – 1 unit</p> <p>CONSUMABLES (per student):</p> <ol style="list-style-type: none"> 1. Disposable examination instrument set in tray – 14 units 2. Alginate impression material – 400 g 3. Silicone impression material Zetaplus (Zhermack) + catalyst – 1 pack 4. Type 4 dental plaster – 700 g 5. Articulating plaster – 700 g 6. Disinfectant wipes – 4 units 7. Rigid vacuum forming film – 14 units 8. Hygienic dental floss – 30 cm 9. Articulating paper 200, 100, 20, 12 µm – 1 pack each 10. Clasp wax – 1 pack 11. Flowable composite – 1 unit 12. Duotrodes for Biopac kit (set of 8) – 1 set 13. Sensors for OccluSense device, size L (set of 25) – 1 set 14. Sensors for OccluSense device, size XL (set of 25) – 1 set 15. Electrodes for TENS (set) – 1 set 16. Disposable retractors for photography – 1 unit 17. Composite for temporary crowns – 2 cartridges 18. Mixing tips for composite
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		cartridges – 14 units 19. Burs for straight handpiece – 14 units 20. Disposable gloves – 14 pairs TEACHING AIDS for a group of 14 students: 1. Case-based tasks 2. Methodological instruction "Hamburg Test"
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7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main readings:

1. Schneider Robert L. Understanding and Developing a Morphologic Occlusion / R. L. Schneider. - Cambridge Scholars Publishing, 2022. - ISBN 9781527584198.
2. Orthopedic dentistry: textbook / S.D. Arutyunov, E.A. Bragin, S.I. Burlutskaya [and others]; edited by E.S. Kalivradzhiyan, I.Yu. Lebedenko, E.A. Bragina, I.P. Ryzhova. - 3rd ed., revised. and additional - M. : GEOTAR-Media, 2020. - 800 p. : ill. - ISBN 978-5-9704-5272-1 : 2200.00.
3. Technology of dental and jaw prosthetics [Text]: a guide for practical exercises / V. N. Trezubov, E. A. Bulycheva, S. D. Arutyunov. - Moscow: Practical Medicine, 2020. - 167 p. : ill., tsv. ill. ; 25 cm. - Bibliography: p. 167 (10 titles). - 500 copies. - ISBN 978-5-98811-582-3 (in translation) A guide to practical exercises on prosthetics of the dentition (complex prosthetics) [Text]: Textbook / I.Yu. Lebedenko [and others]; Ed. I.Yu.Lebedenko. - M.: Practical medicine, 2014. - 408 p. - ISBN 978-5-98811-291-4: 465.00.
4. Guide to practical exercises in prosthetic dentistry for students of the 5th year / edited by Lebedenko I. Yu., Elicheva V. V., Markova B. P. / (Authors: Arutyunov S. D. and others) Educational allowance. - M. : Practical medicine 2012. (Part III. - 512 p.). IBSN: 978-5-98811-046-0
5. Lebedenko Igor Yulievich. Functional and instrumental research methods in orthopedic dentistry [Text]: Textbook for universities / I.Yu. Lebedenko, T.I. Ibragimov, A.N. Ryakhovsky. - M. : Medical Information Agency, 2003. - 128 p. : ill. - ISBN 5-89481-135-X : 260.00.
6. Occlusion. Articulation. Biomechanics in the practice of orthopedic dentistry [Electronic resource]: Teaching aid / Comp. V.S. Bulgakov, S.N. Razumova. - M. : Publishing House of RUDN University, 2009. - 35 p. - ISBN 978-5-209-03385-1 : 0.00.

Additional readings:

1. Prosthetic dentistry: working notebook for independent work of the students on discipline "Propaedeutics of dental diseases", Specialty "Dentistry"; учебно-методическое пособие на английском языке / Сост. С.Н. Разумова и др. ; под ред. С.Н. Разумовой. - М.: РУДН, 2018 - 55 с.: ил. URL: https://mega.rudn.ru/MegaPro/UserEntry?Action=Link_FindDoc&id=470374&idb=0
2. Examination of the patient in the clinic of orthopedic dentistry. Tests [Text]: Teaching aid / RUDN University; Comp. V.S. Bulgakov, Sh.Kh. Sahakyan. - М. : Publishing House of RUDN University, 2007. - 20 p.
3. Bulgakov V.S. Craniomandibular pain in the clinic of orthopedic dentistry: clinic, diagnosis, treatment [text] / V.S. Bulgakov, Kh.S. Shokokat, S.N. Razumova // Bulletin of the Peoples' Friendship University of Russia: Medicine. - 2011. - No. 3. - S. 131-135.

Resources of the information and telecommunications network "Internet":

1. RUDN ELS and third-party ELS, to which university students have access based on concluded agreements:

- RUDN Electronic Library System - RUDN EBS <http://lib.rudn.ru/MegaPro/Web>
- ELS "University Library Online" <http://www.biblioclub.ru>
- EBS Yurayt <http://www.biblio-online.ru>
- ELS "Student Consultant" www.studentlibrary.ru
- EBS "Lan" <http://e.lanbook.com/>
- EBS "Trinity Bridge"

2. Databases and search engines:

- electronic fund of legal and normative-technical documentation <http://docs.cntd.ru/>
- Yandex search engine <https://www.yandex.ru/>
- Google search engine <https://www.google.ru/>
- abstract database SCOPUS <http://www.elsevierscience.ru/products/scopus/>

Educational and methodological materials for independent work of students in the development of the discipline of the discipline "Gnathology and functional diagnostics of the temporomandibular joint":

1. Electronic versions of textbooks
2. Presentations on the topics of the classes
3. Video materials

posted in accordance with the current procedure on the discipline page in TUIS!

1. A course of lectures on the discipline "_____".
2. Laboratory workshop on the discipline "_____" (in the presence of laboratory work).

3. Guidelines for the implementation and execution of a term paper / project in the discipline
" _ " (if there is a CG / CP).

4.

* - all educational and methodological materials for independent work of students are placed in accordance with the current procedure on the page of the discipline in TUIS!

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL UPON COURSE COMPLETION

The assessment toolkit and the grading system* to evaluate the competences formation level (GC-1; GPC-5, 6; PC-1,2,6) upon the course study completion are specified in the Appendix to the course syllabus.

* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

DEVELOPERS:

Professor of the
Department
of prosthetic dentistry

Bykova M. V.

position, department

signature

name and surname

HEAD OF EDUCATIONAL DEPARTMENT:

Professor, Head of the
department of
Prosthetic dentistry

Lebedenko I. Yu.

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HEAD OF HIGHER EDUCATION PROGRAMME:

Deputy Director of medical
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