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

Radiodiagnosis

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

2026

1. COURSE GOAL(s)

The discipline "Radiological diagnostics" is included in the program of the specialty "Dentistry" in the direction of 05/31/03 "Dentistry" and is studied during the 5th semester of the 3rd year. The discipline is implemented by the Department of Oncology and Radiology named after Academician V.P. Kharchenko. The discipline consists of 14 sections and 44 topics and is aimed at studying the basics of modern methods of radiological diagnostics in Dentistry.

The goal of the course "Radiodiagnosis" is to provide theoretical and practical training in modern radiological diagnostics of maxillofacial pathology for doctors specializing in Dentistry.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the course (module) «**Radiodiagnosis»** is aimed at the development of the following competences /competences in part: GPC-9,PC-1

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

Competence code	**Competence descriptor**	**Competence formation indicators** (within this course)
GPC-9	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	GPC -9.2. Evaluates the results of clinical, laboratory and functional diagnostics in solving professional tasks
PC-1	Capable of conducting a patient examination in order to establish a diagnosis	PC-1.5. Establishes a preliminary/ final diagnosis based on the examination of the patient, laboratory and instrumental studies

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*
GPC-9	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Histology, embryology, cytology - Oral Histology; Normal physiology, physiology of the maxillofacial region; Microbiology, virology - Microbiology of the oral cavity	Pediatric Dentistry; Head and neck diseases; Implantology and reconstructive surgery of the oral cavity; Orthodontics and children's prosthetics; Oral surgery; Maxillofacial and gnatic surgery; Obstetrics; Pathophysiology - Pathophysiology of the head and neck; Forensic medicine; Medical rehabilitation; Dental prosthetics (complex prosthetics); Telemedicine; Pathological Anatomy - Head and neck pathology; Ophthalmology; Dental Assistant (Therapist); Dental Assistant (Surgeon); Dental Assistant (for children); Dental Assistant (Orthopedic surgeon); Dental assistant (general practice), including research work; Dental Assistant (Hygienist); Gnathology and functional diagnostics of the temporal mandibular joint; Pediatric Dentistry; Pediatric Maxillofacial surgery; Head and neck diseases; Implantology and reconstructive surgery of the oral cavity; Cariesology and diseases of hard tissues of teeth; Medical genetics in dentistry; Orthodontics and children's prosthetics; Otorhinolaryngology; Dental prosthetics (complex prosthetics); Prosthetics with complete absence of teeth; Oral surgery; Maxillofacial and gnatic surgery; Maxillofacial prosthetics; Midwifery; Gerontostomatology and mucosal diseases

PC-1	Capable of conducting a patient examination in order to establish a diagnosis	Immunology, clinical immunology; Cariesology and diseases of hard tissues of teeth; Propaedeutics of dental diseases; Fundamentals of military training. Life safety; Three-dimensional X-ray diagnostic methods in dentistry**; Three-dimensional-computer modeling of teeth**; Chemistry of biogenic elements**; Dental modeling of teeth**;	Dental Assistant (Therapist); Dental Assistant (Surgeon); Dental Assistant (for children); Dental Assistant (Orthopedic surgeon); Dental assistant (general practice), including research work; Dental Assistant (Hygienist); Gnathology and functional diagnostics of the temporal mandibular joint; Pediatric Dentistry; Pediatric Maxillofacial surgery; Head and neck diseases; Implantology and reconstructive surgery of the oral cavity; Cariesology and diseases of hard tissues of teeth; Medical genetics in dentistry; Orthodontics and children's prosthetics; Otorhinolaryngology; Dental prosthetics (complex prosthetics); Prosthetics with complete absence of teeth; Oral surgery; Maxillofacial and gnatic surgery; Maxillofacial prosthetics; Midwifery; Gerontostomatology and mucosal diseases the membranes of the oral cavity; Periodontology; Endodontics; Modern endodontics**; Aesthetic dental restoration**; Medical rehabilitation; Ophthalmology; Cone beam computed tomography in the diagnosis, planning and evaluation of the effectiveness of dental solutions; Oncostomatology and radiation therapy; Pathophysiology - Pathophysiology of the head and neck; Pathological Anatomy - Head and neck pathology

** - Elective disciplines /practices

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the course "**Radiodiagnosis"** is **3** credits (108 academic hours).

*Table 4.1. Types of academic activities during the periods of higher education programme mastering (**full-time training)****

Type of academic activities		**Total academic hours**	**Semesters/training modules**
			5
Contact work, ac. h		*51*	*51*
including:			
Lectures (LC)		0	0
Lab work (LW)		51	51
Seminars (workshops/tutorials) (S)		0	0
Self-studies		*39*	*39*
Evaluation and assessment (exam/passing/failing grade)		*18*	*18*
Course workload	academic hours	**108**	**108**
	credits	**3**	**3**

* 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**
1.X-ray diagnostics	1.1 Types of electromagnetic waves used in medicine	LW
	1.2 Physical principles of X-rays acquisition, their properties	LW
	1.3 Fluoroscopy, contrast methods of examination	LW
	1.4 Digital X-ray examinations	LW

Course module title	Course module contents (topics)	Academic activities types
	1.5 Areas of use of X-ray examinations	LW
	1.6 Radiation protection in X-ray examinations	LW
2. Diagnostic ultrasound	2.1 Physical characteristics of ultrasonic waves, their acquisition	LW
	2.2 Modes of ultrasonography, Doppler examinations	LW
	2.3 Areas of use of ultrasonography	LW
3. CT and MRI	3.1 Physical principles of CT and MRI	LW
	3.2 Contrast media for CT and MRI	LW
	3.3 Contraindications for CT and MRI	LW
	3.4 Areas of use of CT and MRI	LW
	3.5 Compatibility of MRI and various stomatological constructions	LW
4. Radionuclide methods	4.1 Physical principles of the radionucleide research method. Classification or radionuclides	LW
	4.2 Areas of use of scintography	LW
	4.3	LW

Course module title	Course module contents (topics)	Academic activities types
	PET-CT, its use in modern diagnostics	
5. X-ray diagnostics of the facial-jaw region	5.1 Methods of intraoral radiography. Visiograph	LW
	5.2 Extraoral radiography of the scull and teeth. OPG. CBCT	LW
	5.3 Radiation protection in Dental Radiology	LW
6. Development and anatomy of the facial-jaw region on X-ray images	6.1 Prenatal development of teeth and jaws	LW
	6.2 Radiological characteristics of teeth and jaws in children and adolescents.	LW
	6.3 Radiographic anatomy of teeth and jaws	LW
7. Diagnosis of congenital and acquired deformities of the maxillofacial region	7.1 Etiology of the congenital and acquired anomalies of teeth and jaws	LW
	7.2 Anomalies of size, number, shape and position of teeth. Dental ankylosis.	LW
	7.3 Anomalies of jaws	LW
8. X-ray diagnostics of caries, pulpitis, periodontitis, periodontal diseases	8.1 Radiological classification of caries. Objectives of X-ray examination in the diagnosis of caries and its complications.	LW
	8.2 X-ray semiotics of caries and pulpitis.	LW
	8.3	LW

Course module title	Course module contents (topics)	Academic activities types
	Radiological signs of acute and chronic periodontitis	
	8.4 X-ray semiotics of inflammatory and tumor periodontal diseases	LW
9. Radiation diagnostics of traumatic injuries of jaws and teeth	9.1 Etiology of traumas of teeth and jaws. Combined and complex injuries	LW
	9.2 X-ray semiotics of traumas of the jaws	LW
	9.3 X-ray semiotics of acute traumas of the teeth	LW
10. Radiation diagnosis of malignant tumors of the jaw	10.1 Classification of benign tumors of the maxillofacial zone.	LW
	10.2 X-ray semiotics of odontogenic and non-odontogenic tumors	LW
	10.3 X-ray diagnostics of odontogenic and non-odontogenic cysts	LW
11. Radiation diagnostics of benign tumors and cysts of the jaws.	11.1 Etiology of malignant tumors of the maxillofacial region	LW
	11.2 Radiological methods in the diagnosis of skin cancer and of melanoma.	LW
	11.3 Radiation diagnostics of malignant neoplasms of the oral mucosa.	LW
	11.3 Principles of radiological diagnostics of the malignant neoplasms of the upper and lower jaw	LW
12. Radiation diagnostics of	12.1	LW

Course module title	Course module contents (topics)	Academic activities types
diseases of the salivary glands. Contrast methods.	Clinical and instrumental methods of salivary gland examination	
	12.2 Sialography	Lab
	12.3 Radiation semiotics of sialoadenitis, sialodochitis, sialolithiasis, benign and malignant tumors of the salivary glands, Sjogren's disease and Mikulicz's disease	Lab
13. Diseases of TMJ	13.1 Clinical and radiological methods of pathology TMJ examinations	Lab
	13.2. Semiotics of inflammatory, degenerative, traumatic, and neoplastic diseases of the TMJ	Lab
14. Modern technologies in Dental Radiology	14.1 Areas of CBCT use. AI. Clinical examples.	Lab

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

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENT

Table 6.1. Classroom equipment and technology support requirements

Type of academic activities	Classroom equipment	Specialised educational / laboratory equipment, software, and materials for course study (if necessary)
Lab-work	An auditorium for laboratory work, individual consultations, routine monitoring and interim certification, equipped with a set of specialized furniture and equipment	Microsoft products (OS, office package) (Subscription Enrollment for Education Solutions (EES) No. 56278518 dated

Type of academic activities	Classroom equipment	Specialised educational / laboratory equipment, software, and materials for course study (if necessary)
		23/04/2019) Guarantor (Agreement No. 13A/46/2018 dated 02/04/2018) Consultant Plus (Information Support Agreement dated 01/09/2013) Regt number of the central office-03-207-7474 from September.2013
Seminar	An auditorium for conducting seminar-type classes, group and individual consultations, ongoing monitoring and interim certification, equipped with a set of specialized furniture and multimedia presentation equipment.	Microsoft products (OS, office package) (Subscription Enrollment for Education Solutions (EES) No. 56278518 dated 23/04/2019) Guarantor (Agreement No. 13A/46/2018 dated 02/04/2018) Consultant Plus (Information Support Agreement dated 01/09/2013) Regt number of the central office-03-207-7474 from September.2013
Computer lab	A computer classroom for conducting classes, group and individual consultations, ongoing monitoring and interim certification, equipped with personal computers (in the amount of 3 pcs.), a blackboard (screen) and multimedia presentation equipment.	Microsoft products (OS, office package) (Subscription Enrollment for Education Solutions (EES) No. 56278518 dated 23/04/2019) Guarantor (Agreement No. 13A/46/2018 dated 02/04/2018) Consultant Plus (Information Support Agreement dated 01/09/2013) Regt number of the central office-03-207-7474 from September.2013
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 electronic sources.	Microsoft products (OS, office package) (Subscription Enrollment for Education Solutions (EES) No. 56278518 dated 23/04/2019) Guarantor (Agreement No. 13A/46/2018 dated 02/04/2018) Consultant Plus

Type of academic activities	Classroom equipment	Specialised educational / laboratory equipment, software, and materials for course study (if necessary)
		(Information Support Agreement dated 01/09/2013) Regt number of the central office-03-207-7474 from September.2013

7. **RESOURCES RECOMMENDED FOR COURSE STUDY:**

Main readings:

1. Whaites E. and Drage N. Dental Radiology and Radiography Elsevier/2013, 465 p.
2. Karjodkar Freny R. Essentials of Oral and Maxillofacial Radiology, JaypeeDogital 2019, https://www.jaypeedigital.com/book/9789352705696
3. Rajat Jain, Virendra Jain. Review of Radiology. JaypeeDogital 2017, https://www.jaypeedigital.com/eReader/chapter/9789385999000/ch1
4. Herring William.Learning Radiology : recognizing the basics / W. Herring. - 4th edition - Philadelphia : Elsevier, 2020. - 382 p. : ill. - ISBN 978-0-323-56729-9 : 4730.00.
5. Pramod John R. Textbook of Dental Radiology.2nd Edition. — Jaypee Brothers, 2011. — 289.

Internet-based sources

1. Electronic libraries with access for RUDN students:

-Electronic library network of RUDN – ELN RUDN http://lib.rudn.ru/MegaPro/Web

- ELN «University Library online» http://www.biblioclub.ru

- ELN Urait http://www.biblio-online.ru

- ELN «Student Advisor» www.studentlibrary.ru

- ELN «Lan» http://e.lanbook.com/

- 2. Databases and search engines:

- electronic fund of legal and regulatory and technical documentation http://docs.cntd.ru/

- search system Yandex https://www.yandex.ru/

- search system Google https://www.google.ru/

- abstract database SCOPUS http://www.elsevierscience.ru/products/scopus/

* - All educational and methodological materials for students' independent work are posted in accordance with the current procedure on the discipline's page in TUIS!

DEVELOPER:

Academician, Professor		A.D. Kaprin
position, department	signature	name and surname

HEAD OF EDUCATIONAL DEPARTMENT:

of Urology and Operative Nephrology with a course of oncourology		A.D. Kaprin
name of department	signature	name and surname

HEAD

OF HIGHER EDUCATION PROGRAMME:

Deputy Director of Medical Institute		S.N. Razumova
position, department	signature	name and surname