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

TELEMEDICINE

course title

Recommended by the Didactic Council for the Education Field of:

31.05.01 General Medicine

field of studies / speciality code and title

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

General Medicine

higher education programme profile/specialisation title

2026

1. COURSE GOAL(s)

The course "Telemedicine" is part of the specialist program "General Medicine" in the field of study 31.05.01 "General Medicine" and is studied in the 12th semester of the 6th year. The discipline is delivered by the Department of Medical Informatics and Telemedicine. The discipline consists of 7 sections and 17 topics and is aimed at studying the use of computer and telecommunication technologies for exchanging medical information between specialists to improve the quality of diagnosis and treatment of specific patients.

The purpose of studying the course is to provide students with new knowledge in the field of information technologies, namely the use of remote technologies in healthcare practice and the provision of medical care to the population.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the course "Telemedicine" is aimed at developing the following competencies (or parts thereof) in students:

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

Cipher	Competence	Indicators achievements competencies (within the given disciplines)
GPC-10	Able to solve standard tasks of professional activity using information and bibliographic resources, biomedical terminology, information and communication technologies, taking into account the basic requirements of information security	**GPC -10.1** Able to use modern information and communication tools and technologies in professional activities;
		GPC -10.2 Able to comply with information security rules in professional activities;
		GPC -10.3 Able to use information and communication technologies, including application software, using artificial intelligence technologies, when solving professional tasks
PC -2	Able to conduct patient examination to establish a diagnosis	PK-2.1 Has the skills to collect complaints, medical and life history of the patient, as well as to conduct a complete physical examination of the patient (inspection, palpation, percussion, auscultation);
PC -3	Able to prescribe treatment and monitor its effectiveness and safety	PK-3.1 Able to develop a treatment plan for a disease or condition taking into account the diagnosis, age and clinical picture in accordance with current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account medical care standards;
PC-6	Able to maintain medical records and organize the activities of the middle-level medical personnel under his/her supervision	PC -6.3 Able to maintain medical records, including in electronic form;

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-10	Able to solve standard tasks of professional activity using information, bibliographic resources, biomedical terminology, information and communication technologies, taking into account the basic requirements of information security	Anesthesiology, Resuscitation, Intensive Care; Biostatistics; Medical Informatics; Methods of Analysis of Biomedical Data. Artificial Intelligence in Implementing Practical Healthcare Tasks; Data Analysis and Visualization; Evidence-based Medicine; Fundamentals of Research Work;	
PC-2	Able to conduct patient examination to establish a diagnosis	Surgical internship: assistant surgeon; Therapeutic internship: assistant physician; General practice internship: assistant physician in outpatient clinic; Obstetrics and gynecology internship: assistant obstetrician; Obstetrics and gynecology internship: assistant gynecologist; General practice internship: assistant pediatrician; General Surgery; Dermatovenereology; Neurology, Medical Genetics, Neurosurgery; Ophthalmology; Faculty Surgery; Occupational Diseases; Hospital Therapy; Outpatient Therapy; Hospital Surgery, Pediatric Surgery; Pediatrics; Obstetrics and Gynecology;	

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
		Anesthesiology, Resuscitation, Intensive Care; Oncology, Radiation Therapy; Otorhinolaryngology; Traumatology, Orthopedics; Faculty Therapy; General Medical Skills; Propaedeutics of Internal Diseases; Urology; Infectious Diseases; Psychiatry, Medical Psychology; Phthisiology; Clinical Dentistry; Topical Issues of Neonatology; Cardiology in Quests; Medical Enzymology; Molecular Genetic Methods; Methods of Microbiological Diagnostics; Microbiology, Virology; Immunology; Evidence-based Medicine; Molecular Genetics in Practical Biology and Medicine**; Radiation Diagnostics; Pathophysiology, Clinical Pathophysiology; Pathological Anatomy, Clinical Pathological Anatomy; Medical Elementology; Special Radiology;	
PC-3	Able to prescribe treatment and monitor its effectiveness and safety	Dermatovenereology; Neurology, Medical Genetics, Neurosurgery; Faculty Surgery; Occupational Diseases; Hospital Therapy; Outpatient Therapy; Hospital Surgery, Pediatric Surgery; Pediatrics; Topical Issues of Neonatology; Obstetrics and Gynecology; Oncology, Radiation Therapy; Otorhinolaryngology;	

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
		Traumatology, Orthopedics; Clinical Pharmacology; Cardiology in Quests; Clinical Trials; Faculty Therapy; Ophthalmology; Urology; Infectious Diseases; Psychiatry, Medical Psychology; Phthisiology; Fundamentals of Integrative Medicine; Fundamentals of Pediatric Nutrition; Fundamentals of Clinical Nutrition; Introduction to Nutritionology**; Experimental Oncology; Pharmacology; Mechanisms of Drug Action; Geriatrics and Palliative Medicine; General practice internship: assistant pediatrician; Surgical internship: assistant surgeon; Therapeutic internship: assistant physician; General practice internship: assistant physician in outpatient clinic; Obstetrics and gynecology internship: assistant gynecologist; Obstetrics and gynecology internship: assistant obstetrician;	
PC-6	Able to maintain medical records and organize the activities of the middle-level medical personnel under his/her supervision	General practice internship: assistant physician in outpatient clinic; Internship for primary professional skills: assistant procedural nurse; Obstetrics and gynecology internship: assistant gynecologist; Therapeutic internship: assistant physician; Obstetrics and gynecology internship: assistant obstetrician; Surgical internship: assistant	

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
		surgeon; Introductory practice in primary professional skills: patient care (simulation center); Introductory practice in primary professional skills: patient care; Internship for primary professional skills: assistant junior medical personnel; Public Health and Healthcare, Health Economics; Outpatient Therapy; Faculty Therapy; Faculty Surgery; Obstetrics and Gynecology; Urology; Infectious Diseases; Methods of Analysis of Biomedical Data. Artificial Intelligence in Implementing Practical Healthcare Tasks; Biostatistics; General Surgery; Radiation Diagnostics; Oncology, Radiation Therapy; Ophthalmology; Propaedeutics of Internal Diseases; Hospital Therapy; Hospital Surgery, Pediatric Surgery; Pediatrics; Anesthesiology, Resuscitation, Intensive Care; Forensic Medicine; Bioethics**;	

* 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 discipline "**Telemedicine**" is **2** credits (72 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	
		10	
Classroom learning , *ac.h.*	**32**	**32**	
Lectures (LC)	0	0	

Type of academic activities		Total academic hours	Semesters/training modules	
			10	
Lab work (LW)		0	0	
Seminars (workshops/tutorials) (S)		32	32	
Self-studies		**28**	**28**	
Evaluation and assessment (exam/passing/failing grade)		*12*	*12*	
Course workload	ac.h.	**72**	**72**	
	credits	**2**	**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 Introduction to Telemedicine	`1.1 Basic concepts and definitions. Goals, objectives of modern telemedicine. Regulation of the industry: Federal Law No. 242-FZ of July 29, 2017 "On Amendments to Certain Legislative Acts of the Russian Federation on the Use of Information Technologies in Healthcare"	S
	1.2 Medical care using telemedicine technologies. Demand for telemedicine. Telemedicine as a new form of healthcare organization. Digital transformation of healthcare.	S
	1.3 Prospects for the development of digital healthcare and telemedicine. Patient-centeredness. 4P/5P medicine.	S
	1.4 Unified State Health Information System (USHIS) - the unified digital circuit of healthcare in the Russian Federation. Regulation of the industry: regulatory legal acts on the USHIS of the Ministry of Health of the Russian Federation.	S
Section 2 Technical equipment for telemedicine events	2.1 Legal and regulatory acts (LRA) and regulation of medical care using telemedicine technologies in the Russian Federation. Order of the Ministry of Health of Russia dated April 11, 2025 No. 193n "On approval of the Procedure for organizing and providing medical care using telemedicine technologies." Types of interaction. Classification of telemedicine consultations.	S
	2.2 Telemedicine: global experience, types of services, applied technologies and solutions. Practical experience of leading telemedicine centers in the Russian Federation and foreign countries. Teleradiology - technologies, organization of business processes. Types of services in teleradiology.	S
Section 3 Artificial Intelligence (AI) in medicine and digitalization in medicine	3.1 Modern technologies for remote analysis of medical images. The role of management in implementing innovations or "how to make it work."	S

	Modern technologies for remote analysis of medical images. The role of management in implementing innovations.		
	3.2 AI in medicine: past, present and future, balancing between dreams and reality.	S	PSC
Section 4 Legal, ethical and deontological aspects of telemedicine. Scenarios of telemedicine events.	4.1 Legal and economic relations of subjects in telemedicine. Responsibility of medical organizations and medical workers. Organization of information security in medical organizations, personal data, medical confidentiality. Organization of electronic legally significant document circulation, registration through the Unified Identification and Authentication System (UIAS) of all participants in telemedicine interaction, enhanced qualified electronic signature (EQES).		S
	4.2 Economics and marketing of modern telemedicine. Telemedicine services within compulsory medical insurance (CMI), voluntary medical insurance (VMI) and paid medical services. Problems of Russian telemedicine and ways to solve them.		S
	4.3 Psychological and ethical aspects of doctor-patient interaction during remote interaction (teleconsultations). Features of remote medical services. Zoom burnout of medical workers and its prevention. Scripts for doctors when conducting doctor-patient teleconsultations.		S
Section 5 Telemedicine interaction: doctor-doctor and doctor-patient	5.1 Algorithms for conducting telemedicine consultations: doctor-doctor and doctor-patient. Real-time consultations. Delayed consultations. General requirements.		S
	5.2 Personal telemedicine. Remote monitoring of patients with chronic diseases. Personal medical assistants. Remote monitoring of patients with chronic diseases. Wearable devices for remote monitoring. Introduction to the functionality of a remote monitoring system. Promising areas for remote monitoring.		S
	5.3 Remote monitoring in home telemedicine and telerehabilitation. Basic principles of remote monitoring. Technologies and equipment. Application in telerehabilitation. Advantages and limitations. Prospects.		S
Section 6 Medical Information Systems (MIS) as the basis for digital transformation of healthcare	6.1 Basic definitions. Classification. Classification of MIS, their functionality, place in the digital healthcare circuit. Standards for creating, storing and transmitting medical data. Laboratory information systems. Radiology information systems.		S
	6.2 Types of MIS and their functionality. DICOM standard for creating, storing and transmitting medical images. PACS archives.		S
Section 7 Business game	7.1 Preparation and conduct of a teleconsultation via videoconferencing (VCS). Acquisition and practice of practical skills in organizing teleconsultations. Practical work with VCS equipment and telemedicine platforms. Monitoring compliance with teleconsultation algorithms. Compliance with regulatory restrictions of telemedicine.		S

only for full-time study: LC – lectures; LW – laboratory work; S – practical/seminar classes.

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENT

Table 5.1. Course contents and academic activities types

Type of academic activities	**Classroom equipment**	**Specialised educational / laboratory equipment, software, and materials for course study** (if necessary)
Computer lab	Computer lab for classes, group and individual consultations, current monitoring and intermediate assessment, equipped with personal computers ([Parameter] pcs.), board (screen) and multimedia presentation equipment.	Software: Microsoft products (OS, office suite including MS Office/Office 365, Teams, Vinteo)
Seminar	Classroom for seminar-type classes, group and individual consultations, current monitoring and intermediate assessment, equipped with specialized furniture and multimedia presentation equipment.	Specialized furniture; technical equipment: Videoconferencing system Collaborate Pro900; Asus K756UJ90NB0A21M00890 laptop; Eaton 9130RM 1500BA UPS; ASUS VX279H Black LCD monitors; A3 format professional graphics scanner Microtek ScanMaker 9800XL; Document camera on a platform with built-in light panel AVerVision PL50; Wireless Full HD network camera with night vision support D-Link DCS-2230; ASUS RT-N66U 802.11n router; Apple iPad Air 2 tablet; NEC MultiSync E425+ LCD panel with wall mount; Acoustic system (ceiling-mounted acoustic system LS6CT-5).
Self-studies	Classroom for independent work of students (can be used for seminars and consultations), equipped with specialized furniture and computers with access to the electronic information and educational environment (EIEE).	Software: Microsoft products (OS, office suite including MS Office/Office 365, Teams, Skype, Vinteo)

7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main readings:

1. Telemedicine: tasks, technologies, prospects: study guide / V.L. Stolyar, M.A. Amcheslavskaya, V.F. Fedorov [et al.]. - Electronic text data. - Moscow: RUDN, 2020. - 150 p.: ill.
2. Fundamentals of telemedicine: study guide / V.L. Stolyar, M.A. Amcheslavskaya, A.I. Antipov [et al.]. - Moscow: RUDN, 2017. - 236 p.: ill.

Additional readings:

1. Telemedicine "patient — doctor": risk management / Anton Vyacheslavovich Vladzimirsky, Georgy Stanislavovich Lebedev, Igor Arkadyevich Shadyorkin, Yuri Grigorievich Mironov. — [b. m.] : Publishing Solutions, 2022. — 94 p.
2. Telemedicine: methodological recommendations for conducting video consultations / M.A. Amcheslavskaya, V.L. Stolyar. - Electronic text data. - M. : RUDN, 2017. - 13 p.: ill.

Internet resources:

1. RUDN ELS and third-party ELS accessible to university students under signed agreements:
   - RUDN Electronic Library System https://mega.rudn.ru/MegaPro/Web
   - "University Library Online" http://www.biblioclub.ru
   - "Yurayt" ELS http://www.biblio-online.ru
   - "Student Consultant" ELS www.studentlibrary.ru
   - "Znanium" ELS https://znanium.ru/

2. Databases and search engines:
   - Sage https://journals.sagepub.com/
   - Springer Nature Link https://link.springer.com/
   - Wiley Journal Database https://onlinelibrary.wiley.com/
   - Lens.org scientometric database https://www.lens.org

Educational and methodological materials for independent work of students:

1. Course of lectures on the discipline "Telemedicine".

- all educational and methodological materials for independent work are placed in accordance with the current procedure on the discipline page in the TUIS (Telecommunications Training Information System**).**

8. EVALUATION TOOLKIT AND GRADE SYSTEM FOR ASSESSMENT

Assessment and evaluation toolkit (ET), marking/grading criteria (point-rating system (PRS)* of competences in the discipline « Methods of analysis of biomedical data. Artificial intelligence in implementing practical healthcare tasks» are presented in the Appendix to this course syllabus of the discipline.

* - ET and PRS are formed on the basis of the requirements of the relevant local regulatory act of the RUDN

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