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Federal State Budget Educational Institution
of Higher Education
Pacific State Medical University
of the Ministry of Health of the Russian Federation

APPROVED BY

Head of the Institute of E-Learning (Digital Department)
_____ / Lugovoi R.A./
"1st" of September 2026

SUBJECT GUIDE FOR TEACHERS AND STUDENTS FOR

B1.C.53 Digital health technologies

(name of discipline)

Specialty	**31.05.03 Dentistry for foreign students (English-language program)** (code, name)
Degree	Specialist's degree
Profile	02 "Healthcare" (in the field of providing health care in patients with dental pathology)
Mode of study	**Full-time**
Period of mastering the BEP	**5 years** (nominal length of study)
Institute	of E-Learning (Digital Department)

Vladivostok, 2026

Subject guide for teachers and students for **B1.C.53 Digital health technologies** is based on:
1) Federal State Educational Standard of Higher Education for the specialty approved by the Order No. 984 of Ministry of Science and Higher Education of the Russian Federation
dated August 12, 2020.

2) Curriculum for the 31.05.03 Dentistry for foreign students (English-language program), profile 02 "Healthcare" (in the field of providing health care in patients with dental pathology),
approved by the Academic Council of FSBEI HE PSMU of the Ministry of Health of Russia
Report No. 1-7/25-26 dated March 27, 2026.

Subject guide for teachers and students for **B1.C.53 Digital health technologies** was developed by the writing team of the Institute of E-Learning (Digital Department) of the FSBEI HE PSMU of the Ministry of Health of Russia.

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1. GENERAL PROVISIONS

Subject guide for **B1.C.53 Digital health technologies** is a set of recommendations and explanations that facilitate to optimal organization of mastering this discipline.

Regular analysis of lecture materials and work with end-of-the-text questions are necessary for better understanding of the material and systematization of knowledge of **B1.C.53 Digital health technologies**. Particular attention should be paid to emerging questions, confusing terms, and conflicts of points of view during the independent review of the lecture material. If necessary, a student should contact the teacher for advice. Lecture material streamlines students' thinking, while practical classes provide deeper insight into the material of the discipline.

Special attention should be paid to the content of the main provisions and conclusions, explanation of phenomena and facts, and clarification of the practical application of theoretic aspects of topic when preparing for a practical class. During this process students should aim to understand and remember the main provisions of the material under consideration, examples provided, as well as understand the illustrative material.

Collections of assessment tools are used to organize independent study of topics of **B1.C.53 Digital health technologies**.

Independent work of students is facilitated by the following:

1. availability and accessibility of the necessary educational and reference material;
2. a system of regular quality control of completed independent work;
3. availability of teacher's advice.

Subject guides for self-study are presented as literary sources. Subject guides for independent work of students include a list of library resources of the educational institution and other materials accessible to students.

Independent work is a type of in-person extracurricular work of teachers and students of **B1.C.53 Digital health technologies**. Control of independent work is conducted by the leading teacher. Evaluation of independent work results is taken into account when conducting interim examination of students throughout **B1.C.53 Digital health technologies** course.

Continuous assessment during **B1.C.53 Digital health technologies** course is implemented in order to check indicators of achieving competencies, to stimulate students' academic work, and improve methods of mastering new knowledge. Continuous assessment during **B1.C.53 Digital health technologies** course is conducted during the semester to assess all types and sections of the academic discipline that encompass the competencies developed by the discipline: discussions, working with tests, and other types of independent and classroom work. Continuous assessment of students' knowledge and results of their preparation for practical classes is conducted during every class session.

Interim assessment aims to determine the level of mastery of competency indicators. It is conducted in the pass/fail test format after the student has mastered all sections of **B1.C.53 Digital health technologies** and takes into account learning outcomes for all types of student work over the entire period of mastering **B1.C.53 Digital health technologies** course.

Time allotted for interim assessment is indicated in the schedule.

Assignments given during practical classes, as well as assignments aimed to prepare students for continuous and interim assessment, are included in the collection of assessment tools for **B1.C.53 Digital health technologies**. If necessary, students should contact the teacher for advice. It is necessary to thoroughly think over questions that need clarification before seeking teacher's advice.

2. SUBJECT GUIDES FOR LECTURE CLASSES

Table 1. Subject Guides for **B1.C.53 Digital health technologies** Lectures

Topic No.1 Digital transformation in healthcare	
Duration of the lecture (in academic hours):	2
Purpose of the lecture: 1. tell students about the concept of digital transformation of healthcare in the Russian Federation; 2. define key terms: digitalization, informatization, E-Health; 3. analyze national projects and programs in the field of digital healthcare.	
Lecture plan, order of presentation of its sections: - Concept and essence of electronic document management in healthcare - Concept and essence of digital transformation of healthcare - Unified State Information System in Healthcare - Information security in digital healthcare (requirements of Federal Law No. 152-FZ of 27.07.2006 "On Personal Data"; protection of patients' personal data) - Prospects for the development of digital technologies in healthcare	
Recommended reading: 1. Bakalov V.P. Medical Electronics: Fundamentals of Biotelemetry. - 2nd ed. - M.: Yurait, 2022. - 326 p. 2. Vladzimirsky A.V., Lebedev G.S. Telemedicine. - M.: GEOTAR-Media, 2018. - 576 p.	
Topic No.2 Electronic Document Management in healthcare and Health Information Systems	
Duration of the lecture (in academic hours):	2
Purpose of the lecture: 1. tell students about the structure and functions of medical information systems (MIS); 2. define key terms: electronic document management in a medical organization; 3. analyze the procedure for working with electronic medical documents (EMD).	
Lecture plan, order of presentation of its sections: - Concept and classification of medical information systems - Structure and functionality of MIS: registration desk, outpatient clinic, inpatient department, laboratory - Electronic medical record (EMR): structure, content, rules of maintenance - Electronic document management: electronic signature, legal validity of EMD - The role of the physician in electronic document management; responsibility for the accuracy of data	
Recommended reading: 1. Avacheva T.G. et al. Medical Information Systems: study guide. - Ryazan: UITTiOP of RyazSMU, 2019. - 132 p.	
Topic No.3 Telehealth and robot automation	
Duration of the lecture (in academic hours):	2
Purpose of the lecture: 1. tell students about the principles of organizing telemedicine consultations; 2. define key terms: telemedicine and its types (teleconsultation, telemonitoring, telesurgery); 3. analyze the application of robotic systems in medical practice.	

Lecture plan, order of presentation of its sections: - Concept, types and models of telemedicine - Legal regulation of telemedicine in the Russian Federation - Technological foundations of telemedicine: data transmission, videoconferencing, wearable devices - Robotics in medicine: surgical robots, rehabilitation robots, service robots - Examples of successful application of telemedicine and robotics in Russia and worldwide
Recommended reading: 1. Vladzimirsky A.V., Lebedev G.S. Telemedicine. - M.: GEOTAR-Media, 2018. - 576 p. Korolev A.D. et al. Intelligent Software and Hardware Complexes for Information Transmission in Telemedicine Networks. - 2nd ed. - Tomsk: Tomsk State University Publishing House, 2019. - 360 p.
Topic No.4 Digital health technologies

Duration of the lecture (in academic hours):	2

Purpose of the lecture: 1. tell students about modern digital technologies in diagnostics and treatment; 2. define key terms: artificial intelligence, big data, and the Internet of Things (IoT) in healthcare; 3. analyze diagnostic and treatment methods using digital technologies
Lecture plan, order of presentation of its sections: - Artificial intelligence in medicine: diagnostics, forecasting, personalized medicine - Big Data in healthcare: population health analysis, epidemic forecasting - Internet of Things (IoT): wearable devices, smart implants, remote monitoring - Mobile health (mHealth): applications for patients, telemonitoring of chronic diseases - Ethical and legal aspects of the use of AI in medicine
Recommended reading: 1. Bakalov V.P. Medical Electronics: Fundamentals of Biotelemetry. - 2nd ed. - M.: Yurait, 2022. - 326 p. 2. Korolev A.D. et al. Intelligent Software and Hardware Complexes for Information Transmission in Telemedicine Networks. - Tomsk, 2019. - 360 p.

3. SUBJECT GUIDES FOR PRACTICAL CLASSES

Table 2. Subject Guides for Practical **B1.C.53 Digital health technologies** Classes

Topic No.1 Digital transformation in healthcare	
Duration of the practical class (in academic hours):	6
Purpose of the practical class: 1. consolidate acquired knowledge on the healthcare digitalization concepts; 2. during the discussion, outline the main directions of digital transformation at the primary healthcare level; 3. thoroughly go over definitions and concepts of EGISZ, e-health, digital twin; 4. study patterns of implementing digital technologies in the activities of a medical organization; 5. develop skills in analyzing regulatory legal acts in the field of digital healthcare.	
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, a computer laboratory with Internet access, and subject guides for the discipline.	
Independent work of the student:	

Working with educational literature on the topic of the practical class. Preparing material on the completed lecture. Analyzing regulatory documents. Working with electronic educational resources (EER).	
Methods of evaluation of acquired knowledge and skills: discussion of reports, debates, classroom questioning, testing, analysis of situational problems on the implementation of digital technologies.	
Recommended reading: 1. Bakalov V.P. Medical Electronics: Fundamentals of Biotelemetry. - M.: Urait, 2022.	
Topic No.2 Electronic Document Management in healthcare and Health Information Systems	
Duration of the practical class (in academic hours):	10
Purpose of the practical class: 1. consolidate acquired knowledge on the structure and functions of MIS; 2. during the discussion, outline the main problems of implementing electronic document management in medical organizations; 3. thoroughly go over definitions and concepts of electronic medical record, electronic signature, MIS, FR MR, FR MO; 4. study patterns of the formation and maintenance of electronic medical documents; 5. develop practical skills in working with the interface of a medical information system.	
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, a computer laboratory with Internet access, and subject guides for the discipline.	
Independent work of the student: Working with educational literature on the topic of the practical class. Preparing material on the completed lecture. Analyzing regulatory documents. Working with electronic educational resources (EER).	
Methods of evaluation of acquired knowledge and skills: discussion of reports, debates, classroom questioning, testing, analysis of situational problems on the implementation of digital technologies.	
Recommended reading: 1. Bakalov V.P. Medical Electronics: Fundamentals of Biotelemetry. - M.: Urait, 2022.	
Topic No.3 Telehealth and robot automation	
Duration of the practical class (in academic hours):	6
Purpose of the practical class: 1. consolidate acquired knowledge on the types and models of telemedicine; 2. during the discussion, outline ethical and legal aspects of telemedicine consultations; 3. thoroughly go over definitions and concepts of teleconsultation, telemonitoring, telesurgery, surgical robot; 4. study patterns of organizing telemedicine care at the primary healthcare level; 5. develop skills in preparing a patient for a telemedicine consultation.	
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, a computer laboratory with Internet access, and subject guides for the discipline.	
Independent work of the student: Working with educational literature on the topic of the practical class. Preparing material on the completed lecture. Analyzing regulatory documents. Working with electronic educational resources (EER).	

Methods of evaluation of acquired knowledge and skills: discussion of reports, debates, classroom questioning, testing, analysis of situational problems on the implementation of digital technologies.	
Recommended reading: 1. Vladzimirsky A.V., Lebedev G.S. Telemedicine. - M.: GEOTAR-Media, 2018. - 576 p.	
Topic No.4 Digital health technologies	
Duration of the practical class (in academic hours):	6
Purpose of the practical class: 1. consolidate acquired knowledge on modern digital technologies in diagnostics; 2. during the discussion, outline the capabilities and limitations of artificial intelligence in clinical practice; 3. thoroughly go over definitions and concepts of artificial intelligence, machine learning, Big Data, mHealth; 4. study patterns of using mobile applications in prevention and treatment; 5. develop skills in the critical assessment of the reliability of medical information obtained from digital sources.	
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, a computer laboratory with Internet access, and subject guides for the discipline.	
Independent work of the student: Working with educational literature on the topic of the practical class. Preparing material on the completed lecture. Analyzing regulatory documents. Working with electronic educational resources (EER).	
Methods of evaluation of acquired knowledge and skills: discussion of reports, debates, classroom questioning, testing, analysis of situational problems on the implementation of digital technologies.	
Recommended reading: 1. Korolev A.D. et al. Intelligent Software and Hardware Complexes for Information Transmission in Telemedicine Networks. - Tomsk: TSU Publishing House, 2019. - 360 p.	

4. GUIDELINES FOR CONTINOUS AND INTERIM ASSESSMENT

Table 3. Guidelines for Conducting Continuous and Interim Assessment during the **B1.C.53 Digital health technologies** Course

Type of assessment	Assessment format
Continuous assessment	- conducting and evaluating oral or written quizzes during lectures and practical classes; - assessment and evaluation of completion and results of working with mini case studies; - assess and evaluate completion and results tests; - assessment and evaluation of lecture notes quality.
Interim certification	is conducted in written format; it allows to assess the development of students' competencies correlating with types of professional activity

5 ASPECTS OF THE IMPLEMENTATION OF THE COURSE FOR STUDENTS WITH DISABILITIES AND SPECIAL NEEDS

5.1. Availability of accessible environment

For students with disabilities and special needs, if a written application is submitted, lectures and practical classes are carried out taking into account health limitations, individual capabilities and medical status (hereinafter referred to as individual characteristics) of the student. Compliance with the following general requirements is ensured: teaching aids for collective and individual use are provided, required technical assistance is provided by an assistant, buildings and premises where lectures and practical classes are taking place meet accessibility requirements, other arrangements lack of which makes it impossible or difficult to master the discipline are made.

5.2. Compliance with general requirements

When lectures and practical classes are carried out at the written application of the student, the following general requirements are met: lectures and practical classes for students with disabilities and special needs take place at the same location as for students who do not have disabilities, if this does not cause difficulties for students; an assistant (assistants), who provide(s) students with the necessary technical assistance taking into account individual characteristics of the student, is (are) provided; necessary teaching aids are provided, taking into account individual characteristics of the student.

5.3. Availability of the internal policies and procedures of FSBEI HE PSMU of the Ministry of Health of Russia to students with disabilities in a form accessible to them.

All internal policies and procedures of FSBEI HE PSMU of the Ministry of Health of Russia concerning the discipline (module) are made available to students with disabilities in a form accessible to them.

5.4. Increase in the duration of interim assessment of students with disabilities and special needs in relation to the established duration

Format of the interim assessment of academic performance within the scope of the discipline for students with disabilities and special needs is selected taking into account individual characteristics (orally, by writing on paper, by typing on a computer, as a test, etc.). The duration of the interim assessment in relation to the established duration is increased at the written application of the student with disabilities. Time limit for the student's preparation for the test is increased by at least 0.5 hours

6. STAFFING REQUIREMENTS OF THE DISCIPLINE

Academic teaching personnel that ensure the implementation of the discipline education process meet the requirements of the Federal State Educational Standard of Higher Education for the 31.05.03 Dentistry specialty; list of the aforementioned personnel is available on the website of the educational organization.