MINISTRY OF SCIENCE AND HIGHER EDUCATION
RUSSIAN FEDERATION

FEDERAL STATE AUTONOMOUS EDUCATIONAL INSTITUTION OF HIGHER EDUCATION
NORTH-CAUCASUS FEDERAL UNIVERSITY

Methodological guidelines for organizing and conducting Practical Training. Research Work (Acquisition of Primary Skills in Research Work) for Students majoring (Specialty) in 31.05.01 General Medicine

1. Aims of the practical training
The aims of the educational research work (acquisition of primary skills in research work) in specialty 31.05.01 General Medicine are to develop in students general cultural, personal, and professional competencies aimed at consolidating and deepening theoretical knowledge, mastering the abilities and skills to independently set tasks, analyze the results obtained, and draw conclusions, as well as acquiring and developing skills in conducting research work.

2. Objectives of the practical training
The objectives of the introductory practical training in specialty 31.05.01 General Medicine are:
- To search for literature sources using modern information technologies;
- to formulate and solve tasks arising in the process of performing research work;
- to adequately select appropriate research methods based on the tasks of the master's thesis topic;
- to apply modern information technologies in organizing and conducting scientific research;
- to carry out the selection of necessary materials for completing the final qualification work;
- to conduct statistical processing of experimental data, analyze the results, and present them in the form of completed research developments (a report on research work, abstracts of reports, a scientific article, a course paper).

Forms of conducting, types of practical training:
- types of practical training: educational;
- types of practical training: research work (acquisition of primary skills in research work);
- methods of conducting practical training: stationary;
- forms of conducting practical training: discrete.

3. Place and time of the practical training
The educational research work (acquisition of primary skills in research work), in accordance with the curriculum, is conducted in the first year (2nd semester) for 2 weeks (3 credits, 108 hours).

Venues of the practical training:
educational laboratories of the Department of Propaedeutics of Internal Diseases, Faculty of Medicine and Biology, North Caucasus Federal University;

The distribution of students among the practice sites and the appointment of practice supervisors are carried out in accordance with the order of the university.

4. Requirements for the results of mastering the practical training
As a result of mastering the practical training program, the student must:

KNOW: types of sanitary treatment of patients, types of fevers, features of observation and care for patients with diseases of various body systems; requirements for the therapeutic and protective, sanitary and hygienic, and sanitary and epidemiological regimes of medical organizations.
BE ABLE TO: carry out sanitary treatment of a patient upon admission to the hospital and during the hospital stay, change the patient's bed linen and underwear, treat pressure ulcers; provide care for patients of different ages suffering from diseases of various organs and systems, and transport them; measure body temperature, daily diuresis, collect biological material from patients for laboratory tests; feed patients;

POSSESS: technologies of procedures for observing the sanitary and anti-epidemic regime in the department; skills in caring for patients taking into account their age, nature and severity of the disease, including seriously ill and agonizing patients.

5. List of competencies to be mastered

Code	Formulation
UC-1	Capable of carrying out a critical analysis of problem situations based on a system approach, and developing an action strategy.
UC-2	Capable of managing a project at all stages of its life cycle.
UC-3	Capable of organizing and leading the work of a team, developing a team strategy to achieve the set goal.
UC-4	Capable of applying modern communication technologies, including in foreign language(s), for academic and professional interaction.
UC-6	Capable of determining and implementing the priorities of one's own activity and ways to improve it based on self-assessment and lifelong learning.
UC-7	Capable of maintaining a proper level of physical fitness to ensure full social and professional activity.
GPC-4	Capable of applying medical devices provided for by the procedure for rendering medical care, as well as conducting examinations of the patient in order to establish a diagnosis.
GPC-10	Capable of understanding the principles of operation of modern information technologies and using them to solve tasks of professional activity.
GPC-11	Capable of preparing and applying scientific, research-production, project, organizational, managerial, and regulatory documentation in the healthcare system.
PC-11	Ready for the analysis and public presentation of medical information based on evidence-based medicine.
PC-12	Capable of participating in conducting scientific research and introducing results into practical healthcare.

6. Structure and content of the practical training

The total workload of the practical training is 6 credits (162 hours). The practical training is implemented in the third year of study over four weeks.

The practical training for acquiring professional skills and experience in professional activities in the positions of mid-level medical personnel contains a number of key stages:

- organization of the practical training and the preparatory stage;
- practical work;
- office processing of material in laboratory conditions;
- preparation of the practical training report.

7. Tasks and the procedure for their completion

The main types of work performed by students during the practical training are:

- Preparatory stage: safety briefing, familiarization with the accreditation and simulation center on the basis of which the practical training is conducted — Knowledge acquired during the completion of the preceding parts of the main educational program; the main stages of the work of a physician in an outpatient and polyclinic department.

- Mastering practical skills on phantoms and mannequins under the supervision of a teacher in cardiopulmonary resuscitation in the conditions of an outpatient and polyclinic department

- Protocol for conducting a basic complex of cardiopulmonary resuscitation and a protocol for conducting resuscitation measures using an automated external defibrillator.

- Mastering practical skills on phantoms and mannequins under the supervision of a teacher in providing emergency care to a patient with ACS in the conditions of an outpatient and polyclinic department
- The concept of ACS, its varieties, outcomes. Mechanisms and degree of coronary blood flow disturbance in different forms of ACS, including myocardial infarction. Risk factors for the development of MI. Algorithms for managing patients with ACS without ST-segment elevation and with ST-segment elevation. Etiology, epidemiology, classification of MI. Clinical variants of the onset of MI. Main diagnostic criteria of MI. ECG changes characteristic of MI by periods of the disease in dynamics. Distinctive ECG signs of macrofocal, transmural, and microfocal MI. Biochemical markers of myocardial necrosis, including cardiospecific ones. Know the main differences between the pain syndrome in MI and angina pectoris. The most frequent complications of MI, their clinic, diagnosis, treatment. Main goals, principles and methods of MI treatment. Drug therapy (purpose and time of prescription, mechanisms of action, indications, contraindications, complications, duration of treatment, doses, formulation). Provision of emergency care and planned treatment of MI. Staged rehabilitation of MI patients. Primary and secondary prevention of MI and its complications. Risk stratification, prediction of the course, complications and outcomes of MI.

- Mastering practical skills on phantoms and mannequins under the supervision of a teacher in collecting anamnesis and patient complaints at an outpatient appointment

- Theoretical foundations of social psychology as a science (subject, object, basic concepts and categories of social psychology); the specifics of socio-psychological approaches to the phenomena of social groups, classification and types of social groups; basic communication skills in interpersonal communication: the skill of establishing contact, the skill of conducting a dialogue (interview), the skill of active listening, the skill of ending contact; basic communication skills in the "physician-patient" interaction — fundamentals of ideas about the communicative culture of a physician.

- Practicing practical skills

- Theoretical foundations of basic emergency medical procedures and communication skills.

- Defense of an essay
- Preparation of the practical training report (diary)
- Final certification in the practical training

9. Form of submission of the practical training report with an assessment

For the credit, the following are submitted:

a) a report on the results of the practical training, in which all materials must be reflected;

b) a report on the topic of independent work, a presentation, and an oral report on it at the final conference.

The credit is given to the student for completing all types of planned work. The practical training materials are submitted to the department and are subsequently used by students when writing course and diploma papers and scientific reports.

10. Criteria for awarding grades

"5" (excellent) — the practice schedule was observed; all tasks were completed, no remarks on the design of the diary and the presentation of the material;

"4" (good) — the practice schedule was observed; 80% of the total number of tasks were completed, minor remarks / no remarks on the design of the diary and the presentation of the material;

"3" (satisfactory) — the practice schedule was observed; 70% of the total number of tasks were completed, there are remarks on the design of the diary and the presentation of the material;

"2" (unsatisfactory) — the practice schedule was observed; less than 70% of the total number of tasks were completed, there are gross errors in the presentation of the material, and remarks on the design of the diary.

11. Educational, methodological and informational support of the practical training

Classroom for conducting seminar-type classes (laboratory work)

A classroom equipped with specialized furniture and technical teaching aids: a board, a computer.
Laboratory equipped with laboratory equipment:
1. Automatic selective biochemical analyzer
2. Platelet aggregation analyzer
3. Water bath TW2-0.2
4. Hemocoagulometer TROMB-1
5. Hematology analyzer
6. Laser scarifier ERMED-304
7. Device for staining smears UFOMK-01 "Eiliton"
8. 1-channel variable volume pipette, color 0.5-10
9. 1-channel variable volume pipette, color 100-1000
10. 1-channel variable volume pipette, color 20-200
11. Medical shaker S series, model ST-3L
12. Centrifuge SM-6M with a 6-place rotor

Classroom for conducting seminar-type classes (laboratory work)

A classroom equipped with specialized furniture and technical teaching aids: a board, a computer.
Laboratory equipped with laboratory equipment:
1. Microscopes
2. Sets of reagents and dyes
3. Fume hood
4. Automatic plate washer "Akvamarin"
5. Thermostat TS-180
6. ELISA Spectrophotometer
7. Anaerostat
8. Refrigerator Indesit
9. Colony counter
10. Electric stove
11. Gas burners
12. Laboratory centrifuge OPn-3 "Dastan"
13. Shaker ST-3 for ELISA
14. Bactericidal irradiator

Classroom for conducting seminar-type classes (laboratory work)

A classroom equipped with specialized furniture and technical teaching aids: a portable laptop, a projector, a board.
Laboratory equipped with laboratory equipment:
1. Medical stadiometer SH-8053
2. Dry portable spirometer SSP
3. Tonometer "Periscan" device
4. Polyclinic audiometer AA-02
5. Electronic floor scales VMEN-150
6. Technical pharmacy scales up to 1 kg VA-4M with a set of weights (10 mg - 100 g)
7. Hand dynamometer DK-100
8. Hand dynamometer DK-25
9. Hand dynamometer DK-50
10. Back dynamometer DS-200
11. Mechanical metronome MP80BE 3 302
12. Desktop perimeter PNR-2

13. Portable spirometer MIR with oximeter
14. Upper-level Powerlab Lab Chart systems with an additional set of sensors
15. Psychophysiological testing device UPFT-1/30
16. Exercise bike, bicycle ergometer
17. Luxmeter Yu-116
18. Goniometer (P)
19. Cardiopulmonary and cerebral resuscitation trainer "Maxim-III-01"
20. Physiological couch
21. Projector
22. Laptop
23. Single-beam scanning spectrophotometer "SF-103"
24. Semi-automatic programmable photometer-fluorimeter-chemiluminometer "Fluorat-02-ABLF"
25. Laser therapy device "Standart"
26. Dosimeter-radiometer MKS-03SA

Educational and scientific laboratory
A classroom equipped with specialized furniture.
Laboratory equipped with laboratory equipment:
1. Upper-level Powerlab Lab Chart systems with an additional set of sensors
2. "Periscan" device
3. Analyzer "Fluorat-02-ABLF-T" (complete set)
4. Biochemical analyzer (complete set)
5. Enzyme immunoassay analyzer
6. Psychophysiological testing device UPFT-1/30 "Psychophysiologist"
7. Analyzer "Fluorat-02-ABLF-T" (complete set)
8. Biochemical analyzer (complete set)
9. Enzyme immunoassay analyzer
10. Educational laboratory device Microtome MZP 01 Technom
11. Microscope "MIKMED-1-var. 1"
12. Microscope-spectrophotometer MSFU-K
13. Educational laboratory device Microtome MZP 01 Technom
14. Photometer FBS-01-02 (Microlab-540)
15. Digital biological microscope Moyic DMBA-310 based on BA 300 microscope
16. Electrosurgical device
17. Barochamber
18. Dry heat oven
19. Classic thermostat
20. Thermo-shaker ST-60HL
21. Torsion scales VT 1000
22. Photoelectrocolorimeter
23. Microtome MPS 2
24. Complex for analyzing heart rate variability VARICARD

Classroom for conducting seminar-type classes (laboratory work)
A classroom equipped with specialized furniture and technical teaching aids: a portable laptop, a board.
Laboratory equipped with laboratory equipment:
Set of macro-preparations:
1 - Atherosclerosis of the aorta
2 - Hemorrhagic infarction of the lung
3 - Glandular hyperplasia of the uterine mucosa

4 - Fatty degeneration of the liver
5 - Ischemic infarction of the spleen
6 - Gallstones
7 - Hemorrhage into the brain
8 - Renal anemia in case of anemia
9 - Micronodular cirrhosis of the liver
10 - Rheumatic recurrent verrucous endocarditis
11 - Nutmeg liver
12 - Renal infarctions
13 - Thrombi in the veins of the extremities
14 - Fibrinous tracheitis
15 - Uterine fibromyoma
16 - Phlegmonous appendicitis
17 - Cerebrospinal purulent leptomeningitis
18 - Cyanotic induration of the kidneys and spleen
19 - Small intestine ulcers in typhoid fever
20 - Amebic processes in the liver
21 - Renal amyloidosis
22 - Atherosclerosis and aneurysm of the abdominal aorta
23 - Atherosclerotic nephrosclerosis
24 - Saucer-shaped stomach cancer
25 - Bronchiectasis and pneumosclerosis
26 - Gangrene of the intestine
27 - Hydrocephalus
28 - Cardiac hypertrophy
29 - Glioblastoma of the brain
30 - Diabetic glomerulosclerosis
31 - Diphtheritic ulcerative colitis
32 - Diffuse colloid goiter
33 - Diffuse stomach cancer
34 - Ulcerated cancer of the lower third of the esophagus
35 - Caseous pneumonia
36 - Kidney stones and hydronephrosis
37 - Bone marrow in chronic myeloid leukemia
38 - Micronodular cirrhosis of the liver
39 - Cancer metastases to the liver
40 - Miliary tuberculosis of the lungs
41 - Medullary swelling of grouped follicles of the small intestine in typhoid fever
42 - Cardiac obesity
43 - Adrenal tumor
44 - Acute verrucous endocarditis of the bicuspid valve
45 - Perforated ulcer of the small intestine in typhoid fever
46 - Lung cancer
47 - Kidney cancer
48 - Rheumatic heart disease
49 - Myocardial scar after infarction, chronic cardiac aneurysm
50 - Sarcoma
51 - Spleen in prolonged septic endocarditis
52 - Spleen in lymphogranulomatosis
53 - Septic endometritis
54 - Gray softening (ischemic infarction) of the brain
55 - Toxic liver

56 - Pulmonary embolism
57 - Tubal pregnancy
58 - Tuberculosis of the lymph nodes
59 - Tuberculous spondylitis
60 - Fibrinous-hemorrhagic tracheitis in influenza
61 - Fibrinous pericarditis
62 - Chronic glomerulonephritis with outcome in shrinkage
63 - Ovarian cystadenoma
64 - Stomach ulcer
65 - Stomach cancer
66 - Panasonic UB-T780 copyboard
67 - Pirogov anatomical panel
68 - "NanoEducator" measuring device
69 - Teacher's workstation
70 - Student's workstation (3 pcs.)
71 - Microscope

Classroom for group and individual consultations
Classroom for ongoing monitoring and interim certification
A classroom equipped with specialized furniture and technical teaching aids serving to present educational information to a large audience: a computer, a projector, a magnetic-marker board.

Software:

1.	Alt Workstation 10
2.	Alt Workstation K
3.	Alt Server
4.	Office software package – P7-Office

11. Educational, Methodological, and Informational Support for the Discipline
11.1. List of Main and Additional Literature Required for Mastering the Discipline (Module)
11.1.1. List of Main Literature:
1. Kishkun A. A. Klinicheskaya laboratornaya diagnostika [Clinical Laboratory Diagnostics]: ucheb. posobie. Moscow: GEOTAR-Media, 2013. 962 p. Bibliogr.: pp. 957–962. ISBN 978-5-9704-2559-6.
2. Nasledstvennye bolezni. Polnyy spravochnik [Hereditary Diseases. Complete Reference Book] [Electronic resource]. Saratov: Nauchnaya kniga, 2019. 700 p. ISBN 978-5-9758-1854-6. Available at: http://www.iprbookshop.ru/80196.html (in Russian).
3. Eliseev Yu. Yu., Nazarova L. S., Belyakova N. I. et al. Polnyy spravochnik. Vnutrennie bolezni [Complete Reference Book. Internal Diseases] [Electronic resource]. Saratov: Nauchnaya kniga, 2019. 893 p. ISBN 978-5-9758-1873-7. Available at: http://www.iprbookshop.ru/80177.html (in Russian).

11.1.2. List of Additional Literature:
1. Baskakov M. B. Meditsinskaya fizika. Osnovy morfologii cheloveka i obshchey patologii kletki [Medical Physics. Fundamentals of Human Morphology and General Cell Pathology] [Electronic resource]: uchebnoe posobie. Tomsk: Tomskiy politekhnicheskiy universitet, 2013. 115 p. ISBN 978-5-4387-0318-1. Available at: http://www.iprbookshop.ru/34678.html (in Russian).
2. Glukhareva T. V., Selezneva I. S. Biokhimiya. Chast' 2. Osnovnye regulyatory i biologicheskie zhidkosti chelovecheskogo organizma [Biochemistry. Part 2. Main Regulators and Biological Fluids of the Human Body] [Electronic resource]: uchebnoe posobie. Yekaterinburg: Ural'skiy

federal'nyy universitet, EBS ASV, 2016. 116 p. ISBN 978-5-7996-1843-8. Available at: http://www.iprbookshop.ru/68227.html (in Russian).
3. Klochko I. A. Informatsionnye tekhnologii v professional'noy deyatel'nosti [Information Technologies in Professional Activities] [Electronic resource]: uchebnoe posobie. Saratov: Vuzovskoe obrazovanie, 2014. 236 p. ISSN 2227-8397. Available at: http://www.iprbookshop.ru/20424.html (in Russian).
4. Korotyaev A. I., Babichev S. A. Meditsinskaya mikrobiologiya, immunologiya i virusologiya [Medical Microbiology, Immunology and Virology] [Electronic resource]. Saint Petersburg: SpetsLit, 2012. 760 p. ISBN 978-5-299-00425-0. Available at: http://www.iprbookshop.ru/45694.html (in Russian).
5. Novikova I. A., Khoduleva S. A. Klinicheskaya i laboratornaya gematologiya [Clinical and Laboratory Hematology] [Electronic resource]: uchebnoe posobie. Minsk: Vysheyshaya shkola, 2013. 447 p. ISBN 978-985-06-2226-6. Available at: http://www.iprbookshop.ru/24061.html (in Russian).
6. Pavlovich S. A. Mikrobiologiya s virusologiey i immunologiey[Microbiology with Virology and Immunology] [Electronic resource]: uchebnoe posobie. Minsk: Vysheyshaya shkola, 2013. 800 p. ISBN 978-985-06-2237-2. Available at: http://www.iprbookshop.ru/24067.html (in Russian).

11.2. List of Educational and Methodological Support for the Independent Work of Students in the Discipline (Module)

1.Methodological Guidelines for Organizing and Conducting Practical Training in Emergency Medical Procedures [Electronic resource]. Stavropol: NCFU, 2022. 40 p.

11.3. List of Resources of the Information and Telecommunications Network **Internet** Required for Mastering the Discipline (Module)

1. www.biomed.net — Club of the Biological and Medical Community.
2. www.healthgate.net — Information Search in MEDLINE and Other Bibliographic Databases.
3. www.elibrary.ru — Scientific Electronic Library.
4. www.sbio.info — Information on All Sections of Biology.
5. www.biologylib.ru — Library of Biology.
6. www.ramld.ru — Russian Association of Medical Laboratory Diagnostics;
7. www.rosminzdrav.ru — Ministry of Health of the Russian Federation.

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REPORT ON EDUCATIONAL PRACTICAL TRAINING
research work (acquisition of primary skills in research work)

Student_____

Year of study_____

Specialty_____

Grade_____

Methodological recommendations for preparing a report on the completion of practical training in emergency medical procedures

The report is an analytical systematized document reflecting the degree of mastering the content and achieving the goals of the practical training.

The student's report must contain:

1. a title page;
2. an introduction;
3. the main part;
4. a conclusion;
5. a list of references.

Content of the main sections of the practical training report:

Introduction

- place and time of the practical training;
- the aim and objectives of the practical training for acquiring professional skills and experience in professional activities in the positions of mid-level medical personnel;
- the form of the practical training for acquiring professional skills and experience in professional activities in the positions of mid-level medical personnel;

Main part:

- The relevance of the conducted research;
- Results of the analytical work;
- Proposals for the practical application of the obtained results.

Conclusion: conclusions and proposals based on the results of the practical training for acquiring professional skills and experience in professional activities in the positions of mid-level medical personnel.

The report is prepared in typewritten form on one side of an A4 sheet of paper (297*210). Page parameters: left margin — at least 30 mm, right margin — at least 10 mm, top margin — 15 mm, bottom margin — at least 20 mm. Font Times New Roman, font size — 14, spacing — 1.5.

All tables, diagrams, drawings, figures, and illustrative materials must be titled and numbered.

Page numbering is continuous. The title page is included in the total number of pages of the report. The number is not placed on the title page; on subsequent pages, the number is placed in the upper right corner.

If the report has sections and subsections, they must have sequential numbering and be designated by Arabic numerals with a period at the end. The introduction and conclusion are not numbered.

The work is submitted in a folder with a binder.

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APPROVED BY:
Head of the Department
_____
(Full name)
_____
(signature)
«_____»_____20____y

INDIVIDUAL PLAN FOR THE EDUCATIONAL PRACTICAL TRAINING

research work (acquisition of primary skills in research work)

for the 20___ - 20___ academic year

of the student_____
(Full name)

Specialty_____
(number and title)

Year and mode of study_____

Department _____
(title)

Research supervisor_____
(Full name)

№	Planned forms of work	Number of hours	Calendar dates of conducting

Student _____ _____
(signature) (transcript of the signature)

Research supervisor

_____ _____
(signature) (transcript of the signature)