KHARKIV NATIONAL MEDICAL UNIVERSITY

SYLLABUS OF THE EDUCATIONAL COMPONENT

MEDICAL SIMULATIONS (PRACTICE)

(title of the educational component)

Speciality: **222 «Medicine»**
Educational and professional program: **Medicine**
Component code in the educational program: **MC 22**
Higher education level: **second (master's degree)**
Form of education: **full-time**
Year of study: **2**
Semester(s): **autumn or spring**
Type of educational component: **mandatory**
Academic year: **2025-2026**

Volume: 0,7 **credits ECTS (**20 **hours)**
Training sessions: **practical classes**
Final control: **graded credit**
Prerequisites: **topics in Human anatomy, First aid (practice), Physiology, Clinical anatomy and operative surgery.**

Department/division: Department of Surgery No. 4 , 104 Krasnodarskaya St., KNP MBL No. 18 KhMR,
Head of the educational component: Associate Professor Feskov Volodymyr Mikhailovich,
vm.fesko@knmu.edu.ua

Educational component page in the KhNMU Distance Learning System (Moodle):
https://distance.knmu.edu.ua/course/index.php?categoryid=933
(link to the educational component page in the KhNMU Distance Learning System)

DESCRIPTION OF THE EDUCATIONAL COMPONENT

Educational component **«Medical simulations»** belongs to the mandatory components of the training of future doctors and is aimed at developing in students the basic practical skills and abilities necessary for providing medical care, performing manipulations and procedures, and adhering to ethical and deontological principles in clinical practice. During the mastering of the educational component, students are introduced to the practical part of medicine, mastering the technique of performing medical manipulations, forming quick and correct reactions when providing assistance to patients, developing professional thinking, responsibility, and team interaction. The program involves practicing medical and diagnostic manipulations and emergency measures that are within the competence of medical personnel: performing dressings, stopping bleeding, catheterization, gastric lavage, performing punctures, wound tamponade, immobilization in injuries, cardiopulmonary resuscitation, etc. The assimilation of the material is based on a combination of theoretical training with practicing practical actions in simulation conditions that are as close as possible to real clinical situations. Special attention is paid to practicing emergency response algorithms, patient safety, teamwork, and communication in the medical environment.

PURPOSE OF THE COURSE: mastering systematized knowledge, practical skills and professional abilities necessary to perform basic medical manipulations, practicing algorithms of actions in standard and emergency situations, developing clinical thinking, responsibility, communication skills and adhering to the principles of medical ethics and deontology.

LEARNING OUTCOMES:

- demonstrate mastery of professional ethics, deontological principles, interprofessional interaction, and team communication;
- apply the acquired knowledge while practicing manipulations on simulators of various levels of complexity;
- perform measurements of the patient's vital signs (BP, pulse, HR, SpO_2, body temperature);
- perform intramuscular, subcutaneous, intravenous injections on simulators;
- perform catheterization of peripheral veins, bladder, and placement of a nasogastric tube;
- perform dressings of various types of wounds, apply bandages and tourniquets for external bleeding;
- perform cardiopulmonary resuscitation (CPR) according to modern protocols;
- provide emergency care for injuries, shock, bleeding, and acute respiratory distress;
- perform basic immobilization techniques for limb fractures;
- organize a safe simulation environment for learning;
- apply critical thinking principles when practicing clinical scenarios;
- maintain documentation of simulation training, conduct self-assessment and reflection on the actions taken.

CONTENT OF THE EDUCATIONAL COMPONENT

List of topics of practical / laboratory classes / seminars (10 hours) :

1. Introduction to medical simulations. Practicing the technique of treating the surgeon's hands before surgery; practicing the skills of treating the operating field. Conducting therapeutic and diagnostic manipulations (catheterization of the bladder, gastric lavage, enema administration, digital rectal examination, determination of the patient's blood type, diagnostic puncture of the pleural cavity, conicotomy, application of an occlusive dressing in case of open pneumothorax, laparocentesis, pericardiocentesis).
2. Typical dressings for the head, neck, chest, abdomen, perineum, limbs. Application of the Shants collar, application of a sling bandage, application of a “SAT” tourniquet. Transport immobilization for fractures of the lower and upper extremities. Application of skin sutures. Removal of skin sutures.
3 Differential credit

List of topics of independent work of the student (10 hours)

1. Methodology for performing therapeutic and diagnostic manipulations (bladder catheterization, gastric lavage, enema administration, digital rectal examination, determination of the patient's blood type, diagnostic puncture of the pleural cavity, conicotomy, application of an occlusive dressing in case of open pneumothorax, laparocentesis, pericardiocentesis).
2. Technique for performing dressings on the head, neck, chest, abdominal cavity, perineum, limbs. Applying a Shants collar, applying a sling bandage, applying a "SAT" tourniquet.
3 Preparation for differentiated assessment

VTS is aimed at deepening and consolidating theoretical knowledge obtained during classroom training and contributes to the formation of professional competencies. The results of VTS are subject to control and are included in the final knowledge control.

Consultations: *online, with prior registration on the course page in the Distance Learning System course learning.*

Teaching methods: lectures; practical classes, business games, student reports, modeling problem situations, solving situational and practical tasks, as well as independent work of higher education students with information sources.

During the study of the educational component, all activities of higher education applicants are subject to control, both current (at each lesson) and final (during control events).

EVALUATION

Current Learning Activities (CLA). The assessment of students' academic performance is carried out in accordance with the Regulations on the Assessment of Academic Performance of Higher Education Students at KhNMU (https://knmu.edu.ua/documents/normatyvni-dokumenty-navchalnogo-proczesu/). The grade for a practical or module test session ranges from 2 to 5 points. Late submission of assignments for non-valid reasons will result in a grade reduction proportional to the delay time. Assignments are graded within 24 hours. Grades are recorded in the electronic register. Unsatisfactory grades are retaken in accordance with the Regulations on the Procedure for Retaking Academic Classes by KhNMU Students https://knmu.edu.ua/wp-content/uploads/2021/05/polog_vidprac_zaniat.pdf). At the end of the semester, the average semester grade is converted into a multi-point score (70-120 points) according to Table 1 of the Assessment Regulations (see above). The arithmetic mean of the CAP for both semesters constitutes the Total Academic Performance (TAP).

Individual tasks (IT) Individual student assignments (hereinafter referred to as ISA) are not a mandatory element, but if desired, they can be completed and assessed in ECTS credits (no more than 10), which are added to the total number of credits earned for current academic activities. At a department meeting, a list of individual

assignments (participation with reports in student conferences, specialized competitions, preparation of analytical reviews with presentations checked for plagiarism) was approved, with the number of points for their completion, which can be added as incentives (no more than 10).
Final control. A prerequisite for admission to the exam is earning 70 points for TAP. The exam grade ranges from 50 to 80 points.
Grade in subject (GS). GS = TAP + IA + Exam.
Appealing the results of the final control is carried out in accordance with the procedure established in KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_apel_kontrol.pdf).

POLICIES OF THE EDUCATIONAL COMPONENT

Recommendations for working on the course: Actively participate in all forms of class activities, dedicate 1-2 hours daily to independent study and preparation for classes, ask questions during classes, attend consultations, submit assignments on time, and complete all forms of assessment.
Attending classes. Attendance at lectures and practical classes is mandatory. The dress code for in-person classes is a white medical coat. If you are more than 5 minutes late, you may not be admitted to the class. Missed classes are made up in accordance with the Regulations on the Procedure for Retaking Academic Classes by KhNMU Students (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_vidprac_zaniat.pdf).
Academic Integrity. KhNMU maintains a zero-tolerance policy towards any manifestation of academic dishonesty. Any violation of academic integrity principles will result in disciplinary action as established by KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_ad-1.pdf).
Use of electronic gadgets and artificial intelligence tools. is permitted only with the instructor's permission.
Policy on persons with special educational needs. Students with special educational needs should contact the instructor to develop an individual educational trajectory.
Teacher Response Time: 24 hours.

Technical Requirements for the Course:

- Access to a computer, laptop, tablet, or smartphone
- A corporate Google account with your own photo
- Proficiency with Google Workspace (Google Meet, Docs, Sheets, Slides, Forms) and Moodle

Technical Support: ACS (ev.shevtsov@knmu.edu.ua), Google (tehotdelknmu@gmail.com), Moodle (al.korol@knmu.edu.ua)

RECOMMENDED SOURCES

Basic

1. Simulation training in medicine: a textbook / O. V. Yaremenko, O. V. Volosovets, O. O. Moroz. — Kyiv: Publishing House "Avicenna", 2020. — 240 p.

2. General care for patients: textbook / Kasevich N. M., Litvinenko V. I. — Kyiv: Publishing House "Medicina", 2021. — 450 p.

3. Simulation medicine. Experience. Acquisition. Prospects: practical guide / V. M. Zaporozhan, O. O. Tarabrin. — Sumy: PF “University Book Publishing House”, 2022. — 240 p.

4. Lewis's Medical Surgical Nursing, 12th Ed. / Mariann M. Harding, Jeffrey Kwong, Debra Hagler, Courtney Reinisch. — Elsevier, 2022. — 1824 p.

5. Brunner & Suddarth's Textbook of Medical Surgical Nursing, 15th Ed. / Janice L. Hinkle, Kerry H. Cheever, Kristen J. Overbaugh. — Wolters Kluwer, 2021. — 2352 p.

Auxiliary

1. Simulation technologies as a method of modern medical education / T. O. Zhukova. — Ukraine, 2020.

2. Simulation training: forms and methods of practical training / Yu. M. Kolesnyk. — Ukraine, 2023

3. The Comprehensive Textbook of Healthcare Simulation / Adam I. Levine, Samuel DeMaria Jr, Andrew D. Schwartz, Alan J. Sim. — Springer, 2023.

4. The Essential Handbook of Healthcare Simulation / Paul O'Connor, Angela O'Dea, Dara Byrne. — CRC Press, 2022.

Information resources

Regulations on the prevention, warning and settlement of cases related to sexual harassment and discrimination at KNMU — Order of KNMU No. 305 dated 08/27/2019. https://knmu.edu.ua/wp content/uploads/2021/05/polog_sex.pdf?utm_source=chatgpt.com

Regulations on the organization of inclusive support of the educational process at KNMU - approved in 2024. https://knmu.edu.ua/wp-content/uploads/2024/02/polog_org_incl-suprov.pdf?utm_source=chatgpt.com

Regulations on the organization of inclusive education at KNMU - on the organization of education for applicants with special educational needs. https://knmu.edu.ua/wp-content/uploads/2021/12/proekt_polog_inkl_navch.pdf?utm_source=chatgpt.com

Regulations on academic integrity and ethics of academic relations at KNMU https://knmu.edu.ua/wp-content/uploads/2022/01/polog_ad.pdf?utm_source=chatgpt.com .

Regulations on the Commission on Academic Integrity, Ethics, and Conflict Management of KhNMU https://knmu.edu.ua/wp-content/uploads/2021/11/pol_komis_ad.pdf?utm_source=chatgpt.com

The procedure for conducting classes for in-depth study by students of individual disciplines beyond the scope of the curriculum https://knmu.edu.ua/wp-content/uploads/2021/05/poriad_pogl-vyv_dysc.pdf?utm_source=chatgpt.com .

Head of Department, Professor_____*(signature) Vitaliy MAKAROV*