

SYLLABUS

1. General information on the course

Full course name	General Surgery
Full official name of a higher education institution	Sumy State University
Full name of a structural unit	Medical Institute. Department of Surgery, Traumatology, Orthopedics and Phthisiology
Author(s)	P'iatykop Hennadii Ivanovych
Cycle/higher education level	The Second Level Of Higher Education, National Qualifications Framework Of Ukraine – The 7th Level, QF-LLL – The 7th Level, FQ-EHEA – The Second Cycle
Semester	18 weeks across 5 semester
Workload	5 ECTS, 150 hours, out of which 100 hours are working hours with the lecturer (28 hours of lectures,72 hours of seminars)
Language(s)	English

2. Place in the study programme

Relation to curriculum	Compulsory course available for study programme "Medicine"
Prerequisites	General surgery as an academic discipline is based on the study by students of anatomy, topographic anatomy, physiology, histology, microbiology, virology and immunology, pathophysiology, pathomorphology, radiology, pharmacology, propedeutics of pediatrics, nursing practice, hygiene and ecology and integrates with these disciplines.
Additional requirements	There are no specific requirements
Restrictions	There are no specific restrictions

3. Aims of the course

To lay the foundations for students to study surgery, pediatric surgery, traumatology and orthopedics, neurosurgery, anesthesiology and intensive care, urology, obstetrics and gynecology and other disciplines where surgical treatments are used, which provides for the integration of teaching with these disciplines and the formation of skills in applying knowledge further training and professional activity.

4. Contents

Topic 1 Surgery as science. History of development of surgery. Deontology in surgery. Organization of surgery help. Surgical permanent establishment of clinical base. Sanitary – hygienic requirements to the medical personnel of surgical department.

Stages of development of surgery, domestic surgical schools; organization of surgical care in Ukraine. Rules of conduct in a surgical clinic. A question of surgical deontology. The structure of the surgical clinic. The concept of hygiene in a surgical hospital in order to prevent the spread of hospital infections. Hygiene of the body, clothes of medical personnel, hygiene of linen and clothes of patients. Medical records. Medical manipulations: thermometry, injections (technique).

Topic 2 Antisepsis. History of the development. Types of antisepsis. Chemical antisepsis. Basic methods of the use of antisepsis.

Antiseptics concept. The history of its development. Types of antiseptics and their importance for surgery. Mechanical, physical, chemical, biological antiseptic. Groups of chemical antiseptics. Composition of complex antiseptic substances (Lugol's solution, C-4 solution, etc.). Sanitary and hygienic requirements for the dressing room. Work organization. Types of dressing material, its properties. Features of caring for patients with purulent diseases.

Topic 3 Asepsis. History. Types. Ways of distribution of infection. Preparation and sterilization of dressing and stitch material, operation linen, gloves, surgical instruments. Pre-sterilization processing. Sterilization.

The concept of asepsis. The history of the development of asepsis, its importance in surgery. Ways of spreading the infection. Prevention measures for airdrop, contact and implantation infections. The structure and sanitary - hygienic regime of the surgical hospital and the operating unit. Acquaintance with the method of making napkins, tampons, balls. Preparation of surgical linen and dressings for sterilization, methods of placing in Shimelbusch bixes. The device and operation of the autoclave, safety precautions. The structure of the operating unit. Types of cleaning. Methods of transporting patients to the operating room. Rules for dressing surgical underwear. Preparation of instruments for sterilization. Preparation of washing and disinfecting solutions. Tests for the quality of pre-sterilization processing of instruments. Methods of sterilization for cutting, optical, general surgical instruments. Types of suture material. Methods of sterilization of suture material.

Topic 4 Asepsis. Prophylaxis of contact infection. Disinfections of hands of surgeon and operating field before the operation.

The history of the development of methods for preparing the surgeon's hands and the operating field for surgery. Methods of preparing the surgeon's hands for surgery. Caring for the surgeon's hands outside the clinic. Surgical field processing.

Topic 5 Bleeding. Classification. Etiopathogenesis. Clinical picture. Diagnostic. Methods of determination of bloodloss. Methods of arrest of the bleeding.

Definition and types of bleeding. Determination of the amount of blood loss. The mechanism of self-stopping of bleeding. Methods for temporarily stopping bleeding (finger pressure, pressure bandage, twisting, jute). Methods for the constant stop of bleeding: mechanical, physical, chemical, biological. Vascular suture. Transplantation, alloplasty.

Topic 6 Bases of isoserology. Blood types and rhesus factor. Opening history. Methods of determination of blood and rhesus factor types.

The history of the discovery of blood groups and the Rh factor. Methods for determining the blood group and Rh-affiliation. Determination of blood groups using colyclones, standard sera, standard washed erythrocytes.

Topic 7 Transfusiology. The rules of the blood transfusion, possible complication. Their prophylaxis and treatment of complications. Transfusiology. Components of blood and blood substitutes. Transfusion therapy, possible complications, their prophylaxis.

History of blood transfusion. Tests before blood transfusion. Indications and contraindications for blood transfusion. Ways and methods of blood transfusion. The mechanism of action of the transfused blood and its components. Macroscopic determination of blood quality. Preparations of blood components. Observation of the patient during transfusion, documentation. Groups of blood substitutes. Possible mistakes and complications during transfusion of blood and blood components, classification, pathogenesis, clinic. Prevention of complications in blood transfusion. Methods for the preparation and preservation of donor blood.

Topic 8 Surgical infection. Infection agents, their description. General principles of treatment of patients with a purulent disease. Purulent diseases of skin and hypoderm. Acute purulent diseases of cellular tissue.

The concept of surgical infection and its classification. Characteristics of causative agents of acute nonspecific purulent infection. Pathogenesis of the development of purulent processes in the body, clinical signs and general principles of treatment of patients with purulent diseases from the perspective of evidence-based medicine. Acute purulent diseases of the skin, subcutaneous tissue, cellular tissue. Clinic. Diagnostics. Treatment. Surgical interventions for these diseases.

Topic 9 Acute purulent diseases of blood vessels, lymphatic vessels and lymphatic knots. Acute purulent diseases of serosal cavities.

Etiopathogenesis. Clinic, modern methods of treatment, surgical interventions for these diseases.

Topic 10 Acute purulent non specific infection of bones and joints. Felon.

Etiopathogenesis. Clinic, modern methods of treatment, surgical interventions for these diseases.

Topic 11 Acute anaerobic infection (gas gangrene, tetanus, rabies, anthrax, diphtheria of wounds).

Etiopathogenesis. Clinic, modern methods of treatment, surgical interventions for these diseases.

Topic 12 Damage (trauma). Features of examination of patients with trauma. Desmurgy. Soft bandages. Hard and hardening bandages. Work in dressing room. Practical use of desmurgies.

The concept of injury. Classification of traumas. Combined and complex traumas. Features of the examination of persons with trauma and their treatment. The concept of desmurgy. Types of dressings. Typical bandages. Bandaging rules. Types of dressings, that hardening. Plaster of Paris quality tests. Plaster of Paris technique rules.

Topic 13 Closed damages of soft tissue. Crush-syndrome. Closed damages of skull, thorax, abdominal cavity, retroperitoneal space.

The concept of injury. Clinical manifestations of closed damage to soft tissues, skull, chest, abdominal organs. Crash syndrome, etiopathogenesis, clinic, diagnosis, treatment. Prevention of traumatic shock, pneumothorax, internal bleeding. Features of first aid and transportation of patients with these injuries and treatment.

Topic 14 Dislocations. Fractures.

Definition of a fracture. Classification. The mechanism of the fracture. Types of displacement of bone fragments. Callus formation. The clinical picture. Diagnostic methods. First aid for fractures, its tasks. Arsenal of transport immobilization. The structure of the Dietrich's and Cramer's splints. Providing first aid to a patient with a fracture. Imposition splints from improvised materials. The main tasks of the treatment of fractures in the hospital. The main types of closed and open treatment. Anesthesia. Fixation and extension methods of treatment. Indications for surgery. Methods of surgical interventions for fractures. Outcomes of fracture treatment. Dislocations, concepts. Classification. The mechanism of occurrence. Clinical manifestations. Differential diagnosis between fracture and dislocation. Treatment of dislocations.

Topic 15 Wounds. Classification. Phases of wound process.

Wounds, definition, classification. The structure of the wound and the course of the wound process in a clean wound. Characteristics of certain types of wounds and first aid for them. Conditions under which an infection occurs in a wound, and their elimination. The structure of a clean wound. Primary surgical treatment of the wound. Types of primary sutures. Treatment of a clean wound in the postoperative period.

Topic 16 Treatment of wounds.

History of wound healing. Principles of surgical treatment of fresh wounds from the perspective of evidence-based medicine. Primary surgical treatment of the wound. Types of primary sutures. Treatment of a clean wound in the postoperative period. Features of the surgical treatment of purulent wounds. Types of wound healing (primary and secondary intention), the structure of granulation tissue, features of the treatment of purulent wounds with anaerobic infection. Modern antiseptics for the treatment of purulent wounds. Additional methods to stimulate the healing of a purulent wound. Antibiotic therapy, specific and non-specific immunotherapy for purulent wounds from the perspective of evidence-based medicine.

Topic 17 Thermal, chemical and radiation burns. Burns disease. Electrical trauma, frostbites, freezing.

Classification of burns by depth, area, severity. Clinical manifestations of thermal burns. Symptoms of burns with chemical substances. Radiation burns. Periods of the course of burn disease. First aid for various types of burns. Treatment of burns in the hospital. Treatment of burn disease according to the course. Types of surgical interventions for burns. Frostbite. Definition. Degrees. Clinical manifestations. Features of rendering first aid to a patient with frostbite in the latent period. Treatment of frostbite in the hospital. Freezing. Stages and first aid. Electrical trauma, features of the course. First aid for electrical trauma.

Topic 18 Local anesthesia. Topical anesthetics. The kinds of local anesthesia. Technique of performing. Possible complications, their prevention and treatment.

The concept of local anesthesia. The history of its development. The drugs are local anesthetics. Mechanism of action. Indications and contraindications for local anesthesia. Varieties of local anesthesia (terminal, infiltrative, regional anesthesia). Methods of local anesthesia by O. V. Vyshnevsky. Possible complications, their prevention and treatment.

Topic 19 Novocain blockades. Technique of performing. Prevention of complications.

Characteristics of novocaine blockade. Technique of paranephric blockade, blockade of abdominal nerves according to Kapis, intrapelvic blockade according to Selivanov. Prevention of complications.

Topic 20 General anesthesia (narcosis). Theories. History of development. Preparation of patients for narcosis. Kinds of narcosis. Inhalation narcosis.

Substances for inhalation anesthesia (nitrous oxide, halothane, ether, chloroform, cyclopropane). Clinical stages of ether anesthesia. Mask anesthesia, intubation anesthesia. Muscle relaxants, types, mechanism of action. Complications of inhalation anesthesia (regurgitation, recurarization). Their prevention and treatment. Modern multicomponent endotracheal anesthesia.

Topic 21 Non-inhalation narcosis. Intensive care during and after narcosis.

Substances for non-inhalation anesthesia (sodium thiopental, sodium oxybutyrate, hexanal, calyptol). Advantages and disadvantages of non-inhalation anesthesia. Clinical stages of intravenous anesthesia with calyptol, indications and contraindications for its implementation. Neuroleptanalgesia. Ataralgesia. Central analgesia. The drugs used for these types of anesthesia. Indications and contraindications for their use.

Topic 22 Resuscitation. History of development. Basic principles of cardiopulmonary resuscitation at the terminal states.

Terminal states and their characteristics. Signs of clinical death. The history of the development of intensive care (A. Vesaliy, Garvey, Sylvester, Ingelstrud, Covenhoven). Methods of artificial ventilation of the lungs (by Sylvester, by Schaffer, by Labordi). The technique of closed and open heart massage. Indications for open heart massage. ABC resuscitation rule. Technique of cardiopulmonary resuscitation.

Topic 23 Critical conditions in surgery. Etiopathogenesis. Clinic. Diagnosis. Intensive care.

Syncope, pathogenesis, clinic, medical care. Collapse, pathogenesis, clinical picture, treatment. Shock, theory of pathogenesis, classification. Phases of shock according to M.I. Pirogov. Algover's shock index. Hemorrhagic shock. Classification. Clinic, diagnostics, treatment from the perspective of evidence-based medicine.

Topic 24 Basis of clinical oncology. Theories of cancer genesis. Clinical symptoms. Diagnostic of malignant tumors.

Theories of the origin of malignant tumors (Virchow, Congheim, Zilber, polyetiological). Differences between malignant and benign tumors. Hayflick limit for malignant tumors. Precancer, types. Distant metastases (Schnitzler, Virchow, Krukenberg, sister Mary-Joseph). Ways of metastasis of malignant tumors. Stages of malignant tumors. International classification of tumors according to the TNMPG system.

Topic 25 Modern principles of treatment of malignant tumors.

Surgical, combined, complex methods of treatment of malignant tumors from the perspective of evidence-based medicine. The principles of ablative and antineoplastic. Types of radical operations. Radiation therapy. Kinds. Methods of conducting. Chemotherapy. Types, preparations. Groups of chemotherapy drugs (alkylating, antimetabolites, antitumor antibiotics). Complications of chemotherapy, prevention and treatment. Hormone therapy (ablative, antagonistic, additive). Immunotherapy of malignant tumors (specific, non-specific) from the perspective of evidence-based medicine.

Topic 26 Anomalies of development and monstrosities.

Etiology of malformations and monstrosities. Endogenous and exogenous factors. Classification of developmental defects. Congenital defects of the heart and main vessels. Atavistic deformities (ichthyosis, polymastia, polythelia, hermaphroditism). Malformations of the gastrointestinal tract (pyloric stenosis, Meckel's diverticulum, Hirschsprung's disease). Epispadias, hypospadias, cryptorchidism, phimosis, paraphimosis. Clinic, diagnostics. Surgical treatment. De Giorgi syndrome, Klippel-Feil disease. Prevention of congenital malformations. The history of the development of plastic surgery (Branko, M.I. Pirogov, Yanovich-Chainsky, Reverden, V. Filatov, Carrel, Paget). Transplantation, types of transplantation (autogenous, allogeneic, isogenic, xenogenic). Heart transplantation, history, biological and legal aspects. Kidney transplant. Replacement of limbs. The reaction of tissue incompatibility and ways to overcome it. Methods of dermoplasty. Brepheoplasty.

Topic 27 Insufficiency of blood and lymph circulation. Embolism and thrombosis of vessels. Etiology and pathogenesis. Clinic. Diagnostic. Treatment.

Etiopathogenesis. Clinic. Diagnosis. Treatment of acute arterial obstruction. Stages of ischemia. Obliterating endarteritis. Lericq's syndrome, Takayashi's disease, Raynaud's disease. Stages of chronic arterial obstruction. Tests by Oppel, Samuels, Moshkovich. Acute and chronic venous insufficiency. Tests by Troyanov-Trendelenburg, Pratt, Delbe-Perthes. Paget-Schretter-Christelli disease.

Topic 28 Necrotic processes (gangrene, trophic ulcers, fistulae, bedsores).

Classification of necrosis. Types of gangrene. Etiopathogenesis of development, mortifications. Complex treatment of gangrene from the perspective of evidence-based medicine. Trophic ulcers. Diagnostics, treatment. Bedsores. Etiopathogenesis, prevention and treatment. Fistulas. Classification, diagnosis, treatment.

Topic 29 General examination of surgical patients: rules and principles of anamnestic examination. Objective examination of skin, its appendages, of peripheral lymph nodes.

Methods of collecting anamnesis. Objective examination of the skin, subcutaneous tissue, mucous membranes and lymph nodes.

Topic 30 Technique of examination of head, neck, mammary glands, chest, abdomen.

Objective examination of the neck, chest, abdomen, breast.

Topic 31 Methods for examining the muscular, vascular and nervous systems. Methods of examination of the perineum and rectum and musculoskeletal systems.

Objective examination of the muscular, vascular and nervous systems, perineum, rectum, musculoskeletal system.

<p>Topic 32 Study of the medical history of a surgical patient. Supervision of surgical patients. Study of medical history. Work of students with patients. Collection of complaints, anamnesis of the disease and life. Objective examination of the patient. Study of additional methods of examination of patients. Entering data into the educational form of the medical history.</p>
<p>Topic 33 Examination of the surgical patient and observation during his treatment. Work of students with patients. Participation in the dressings of operated patients. Monitoring patients in the postoperative period.</p>
<p>Topic 34 Registration of medical history. Final registration of the medical history.</p>
<p>Topic 35 Defense of case history. Students substantiate the diagnosis, demonstrate methods of objective examination of patients, discuss methods of treatment of patients, demonstrate knowledge of modern drugs and methods of treatment. Carrying out the analysis and discussion of the mistakes, which have been made at registration of medical histories by students.</p>
<p>Topic 36 Final module control. Final modular control.</p>

5. Intended learning outcomes of the course

After successful study of the course, the student will be able to:

LO1	Acquire the skills of interviewing and objective examination of the patient with surgical pathology.
LO2	To substantiate the use of basic invasive and non-invasive diagnostic methods, to be able to perform medical manipulations to patients with surgical diseases.
LO3	To formulate a clinical diagnosis based on the evaluation of the results of laboratory and instrumental research methods in patients with surgical nosology.
LO4	Be able to determine the tactics of management of patients with various surgical diseases.
LO5	To master the main classes of pharmacological drugs used in surgical practice, to apply the appropriate clinical and pharmacological principles.
LO6	Apply in practice algorithms for examination and management of patients with emergency conditions.
LO7	Demonstrate possession of the moral and deontological principles of a medical specialist and the principles of professional subordination.
LO8	Be able to assess the impact of the environment, socio-economic and biological determinants on the course of the postoperative period and the development of possible complications.

6. Role of the course in the achievement of programme learning outcomes

Programme learning outcomes achieved by the course.

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PO1	To detect and identify the leading clinical symptoms and syndromes (according to the List 1); to establish the most probable nosological or syndromic preliminary clinical diagnosis of diseases (according to the List 2) using standard methods, preliminary data of the patient's anamnesis, patient's examination data, and knowledge about a human, his organs and systems.
PO2	To collect information about the patient's general condition; to assess the patient's psychomotor and physical development and the state of organs and systems of the body; to assess information on the diagnosis (according to the List 4) based on laboratory and instrumental findings.
PO3	To order and analyze additional (mandatory and optional) examinations (laboratory, radiological, functional and/or instrumental) (according to the List 4) in order to perform a differential diagnosis of diseases (according to the List 2).
PO5	To detect the key clinical syndrome or the reason for patient's condition severity (according to the List 3) via informed decision and evaluation of the person's state under any circumstances (at home, in the street, at a healthcare facility), including under emergency and military operation conditions, in the field, with a lack of information and limited time.
PO6	To determine the nature and treatment principles (conservative, operative) in patients with diseases (according to the List 2) at a healthcare facility, at patient's home or during medical evacuation process (including in the field), based on the provisional clinical diagnosis and observing the relevant ethical and legal norms, by making a reasonable decision according to existing algorithms and standard procedures based on the principles of evidence-based medicine; if needed to go beyond the standard scheme, to substantiate the personalized recommendations under control of a supervising doctor at a medical facility.
PO14	To perform medical procedures (according to the List 5) at a medical facility, at home or at work on the basis of a provisional clinical diagnosis and/or health parameters through making an informed decision and adhering to the relevant ethical and legal norms.
PO18	To search for the necessary information in the professional literature and databases; to analyze, evaluate, and apply this information. To apply modern digital technologies, specialized software, statistical methods of data analysis to solve complex health problems.
PO19	To assess environmental impact on public health.

7. Teaching and learning activities

7.1 Types of training

Topic 1. Surgery as science. History of development of surgery. Deontology in surgery. Organization of surgery help. Surgical permanent establishment of clinical base. Sanitary – hygienic requirements to the medical personnel of surgical department.

pr.tr.1 "Surgery as science. History of development of surgery. Deontology in surgery. Organization of surgery help. Surgical permanent establishment of clinical base. Sanitary – hygienic requirements to the medical personnel of surgical department." (full-time course)

Stages of development of surgery, domestic surgical schools; organization of surgical care in Ukraine. Rules of conduct in a surgical clinic. A question of surgical deontology. The structure of the surgical clinic. The concept of hygiene in a surgical hospital in order to prevent the spread of hospital infections. Hygiene of the body, clothes of medical personnel, hygiene of linen and clothes of patients. Medical records. Medical manipulations: thermometry, injections (technique). The study of this topic involves theoretical work in the classroom, in the absence of quarantine - work in the surgical department of the hospital (according to the agreement on cooperation between the medical institution and the university).

Topic 2. Antisepsis. History of the development. Types of antisepsis. Chemical antisepsis. Basic methods of the use of antisepsis.

pr.tr.2 "Antisepsis. History of the development. Types of antisepsis. Chemical antisepsis. Basic methods of the use of antisepsis." (full-time course)

Antiseptics concept. The history of its development. Types of antiseptics and their importance for surgery. Mechanical, physical, chemical, biological antiseptic. Groups of chemical antiseptics. Composition of complex antiseptic substances (Lugol's solution, C-4 solution, etc.). Sanitary and hygienic requirements for the dressing room. Work organization. Types of dressing material, its properties. Features of caring for patients with purulent diseases. The study of this topic involves theoretical work in the classroom, in the absence of quarantine - work in the dressing room of the surgical department, at the patient's bedside (according to the agreement on cooperation between the medical institution and the university).

Topic 3. Asepsis. History. Types. Ways of distribution of infection. Preparation and sterilization of dressing and stitch material, operation linen, gloves, surgical instruments. Pre-sterilization processing. Sterilization.

pr.tr.3 "Asepsis. History. Types. Ways of distribution of infection. Preparation and sterilization of dressing and stitch material, operation linen, gloves, surgical instruments. Pre-sterilization processing. Sterilization." (full-time course)

The concept of asepsis. The history of the development of asepsis, its importance in surgery. Ways of spreading the infection. Prevention measures for airdrop, contact and implantation infections. The structure and sanitary - hygienic regime of the surgical hospital and the operating unit. Acquaintance with the method of making napkins, tampons, balls. Preparation of surgical linen and dressings for sterilization, methods of placing in Shimelbusch bixes. The device and operation of the autoclave, safety precautions. The structure of the operating unit. Types of cleaning. Methods of transporting patients to the operating room. Rules for dressing surgical underwear. Preparation of instruments for sterilization. Preparation of washing and disinfecting solutions. Tests for the quality of pre-sterilization processing of instruments. Methods of sterilization for cutting, optical, general surgical instruments. Types of suture material. Methods of sterilization of suture material. The study of this topic involves theoretical work in the classroom, in the absence of quarantine - in the operating unit, in the central sterilization department.

Topic 4. Asepsis. Prophylaxis of contact infection. Disinfections of hands of surgeon and operating field before the operation.

lect.1 "Surgery as science. History of development of surgery. Antisepsis. Asepsis." (full-time course)

Basic ethical and deontological provisions in surgery. The structure of the surgical clinic and the organization of the work of medical personnel. Methods of modern antiseptics and asepsis. Methods of preparation for the use of dressings, surgical linen, surgical instruments, stitch material. Methods of processing the hands of the surgeon and the operating field. Organization of work in clean and purulent dressing rooms, features of care of patients in dressing rooms. Organization of work in the operating room. Preparing the patient for planned and urgent surgical intervention. Patient care in the postoperative period. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.4 "Asepsis. Prophylaxis of contact infection. Disinfections of hands of surgeon and operating field before the operation." (full-time course)

The history of the development of methods for preparing the surgeon's hands and the operating field for surgery. Methods of preparing the surgeon's hands for surgery. Caring for the surgeon's hands outside the clinic. Surgical field processing. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching films on the technique of treating the surgeon's hands and the operating field before the operation) followed by discussion. In the absence of quarantine - work in the operating unit of the surgical department of the medical institution (according to the agreement on cooperation between the medical institution and the university).

Topic 5. Bleeding. Classification. Etiopathogenesis. Clinical picture. Diagnostic. Methods of determination of bloodloss. Methods of arrest of the bleeding.

lect.2 "Bleeding. Classification. Methods of arrest of the bleeding." (full-time course)

Classification of bleeding and determination of the severity of blood loss. Methods for temporary and permanent stopping of bleeding. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.5 "Bleeding. Classification. Etiopathogenesis. Clinical picture. Diagnostic. Methods of determination of bloodloss. Methods of arrest of the bleeding." (full-time course)

Definition and types of bleeding. Determination of the amount of blood loss. The mechanism of self-stopping of bleeding. Methods for temporarily stopping bleeding (finger pressure, pressure bandage, twisting, jute). Methods for the constant stop of bleeding: mechanical, physical, chemical, biological. Vascular suture. Transplantation, alloplasty. The study of this topic involves theoretical work in a classroom, work in a simulation center (work with hemostatic tourniquets of various configurations), the use of virtual simulation (watching films about the main methods of temporarily stopping bleeding) with subsequent discussion. Role-playing games. If possible - work at the patient's bedside in the surgical department of a medical institution (according to the agreement on cooperation between the medical institution and the university).

Topic 6. Bases of isoserology. Blood types and rhesus factor. Opening history. Methods of determination of blood and rhesus factor types.

pr.tr.6 "Bases of isoserology. Blood types and rhesus factor. Opening history. Methods of determination of blood and rhesus factor types." (full-time course)

The history of the discovery of blood groups and the Rh factor. Methods for determining the blood group and Rh-affiliation. Determination of blood groups using colyclones, standard sera, standard washed erythrocytes. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching films with the determination of blood groups) followed by discussion. . In addition, the study of this topic includes role-playing games, mastering practical skills in a simulation center (work with standard sera), work in the manipulation room of the surgical department of a medical institution (according to the agreement on cooperation between the medical institution and the university). Interpretation of results of laboratory methods of examination.

Topic 7. Transfusiology. The rules of the blood transfusion, possible complication. Their prophylaxis and treatment of complications. Transfusiology. Components of blood and blood substitutes. Transfusion therapy, possible complications, their prophylaxis.

lect.3 "Bases of isoserology. Transfusiology." (full-time course)

Methods for determining the blood group and Rh factor. Conducting tests for the compatibility of donor and recipient blood. Indications and contraindications for transfusion of blood and blood products, methods of blood transfusion. Blood transfusion and observation of the patient during this manipulation. Classification of blood substitutes. Possible mistakes and complications during blood transfusion. Preventive and therapeutic measures for complications during blood transfusion. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.7 "Transfusiology. The rules of the blood transfusion, possible complication. Their prophylaxis and treatment of complications. Transfusiology. Components of blood and blood substitutes. Transfusion therapy, possible complications, their prophylaxis." (full-time course)

History of blood transfusion. Tests before blood transfusion. Indications and contraindications for blood transfusion. Ways and methods of blood transfusion. The mechanism of action of the transfused blood and its components. Macroscopic determination of blood quality. Preparations of blood components. Observation of the patient during transfusion, documentation. Groups of blood substitutes. Possible mistakes and complications during transfusion of blood and blood components, classification, pathogenesis, clinic. Prevention of complications in blood transfusion. Methods for the preparation and preservation of donor blood. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching films with the indicated pathology) followed by discussion. In addition, the study of this topic involves the acquisition of practical skills in the manipulation room of the surgical department of a medical institution (according to the agreement on cooperation between a medical institution and a university), work in a blood transfusion center. Interpretation of the results of laboratory methods of research. Work in a simulation center (filling of systems for blood transfusion). In the absence of quarantine - work in a specialized department at the patient's bedside.

Topic 8. Surgical infection. Infection agents, their description. General principles of treatment of patients with a purulent disease. Purulent diseases of skin and hypoderm. Acute purulent diseases of cellular tissue.

pr.tr.8 "Surgical infection. Infection agents, their description. General principles of treatment of patients with a purulent disease. Purulent diseases of skin and hypoderm. Acute purulent diseases of cellular tissue." (full-time course)

The concept of surgical infection and its classification. Characteristics of causative agents of acute nonspecific purulent infection. Pathogenesis of the development of purulent processes in the body, clinical signs and general principles of treatment of patients with purulent diseases from the perspective of evidence-based medicine. Acute purulent diseases of the skin, subcutaneous tissue, cellular tissue. Clinic. Diagnostics. Treatment. Surgical interventions for these diseases. The study of this topic involves theoretical work in the classroom. In the absence of quarantine restrictions - work at the patient's bedside in the specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university). Drawing up a treatment plan for the patient.

Topic 9. Acute purulent diseases of blood vessels, lymphatic vessels and lymphatic knots. Acute purulent diseases of serosal cavities.

pr.tr.9 "Acute purulent diseases of blood vessels, lymphatic vessels and lymphatic knots. Acute purulent diseases of serosal cavities." (full-time course)

Etiopathogenesis. Clinic, modern methods of treatment, surgical interventions for these diseases. The study of this topic involves theoretical work in the classroom. In addition, the study of this topic involves work at the patient's bedside in the specialized departments of a medical institution (according to the agreement on cooperation between the medical institution and the university). Interpretation of the results of laboratory and instrumental methods of examination, preparation of a treatment plan.

Topic 10. Acute purulent non specific infection of bones and joints. Felon.

lect.4 "Surgical infection. Acute purulent diseases of skin and hypoderm. Acute purulent diseases of cellular tissue, blood and lymphatic vessels, serous cavities, bones." (full-time course)

Classification of surgical infection. Diagnostics of acute purulent diseases of soft tissues, differential diagnosis between them and other diseases. Conservative and surgical methods of treatment. Pathogenesis of development and clinical forms of acute hematogenic osteomyelitis. Therapeutic tactics for various forms of acute hematogenic osteomyelitis. Clinical manifestations, diagnostic methods, treatment tactics for chronic forms of osteomyelitis. Features of the course of acute purulent diseases in patients with AIDS and drug addiction. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.10 "Acute purulent non specific infection of bones and joints. Felon." (full-time course)

Etiopathogenesis. Clinic, modern methods of treatment, surgical interventions for these diseases. The study of this topic involves theoretical work in the classroom. If possible - work in the surgical department of the medical institution (according to the agreement on cooperation between the medical institution and the university), drawing up a plan for the treatment of the underlying disease and providing emergency care.

Topic 11. Acute anaerobic infection (gas gangrene, tetanus, rabies, anthrax, diphtheria of wounds).

lect.5 "Chronic not specific and specific surgical infection. Sepsis. Anaerobic infection."
(full-time course)

Clinical manifestations of anaerobic gas gangrene, tetanus, wound diphtheria, anthrax and treatment programs from the perspective of evidence-based medicine. A method of preventing tetanus, diphtheria, anthrax, gas gangrene. Modern classification of sepsis, methods of its diagnosis, treatment program for a patient with sepsis from the perspective of evidence-based medicine. Pathogenetic aspects of the development of endogenous intoxication during surgical infection and methods of detoxification and immunocorrection. Clinic of osteoarticular tuberculosis, actinomycosis, syphilis. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.11 "Acute anaerobic infection (gas gangrene, tetanus, rabies, anthrax, diphtheria of wounds)." (full-time course)

Etiopathogenesis. Clinic, modern methods of treatment, surgical interventions for these diseases. The study of this topic involves theoretical work in the classroom. Work in a specialized department of a medical institution (according to the agreement on cooperation between a medical institution and a university).

Topic 12. Damage (trauma). Features of examination of patients with trauma. Desmurgy. Soft bandages. Hard and hardening bandages. Work in dressing room. Practical use of desmurgies.

pr.tr.12 "Damage (trauma). Features of examination of patients with trauma. Desmurgy. Soft bandages. Hard and hardening bandages. Work in dressing room. Practical use of desmurgies."
(full-time course)

The concept of injury. Classification of traumas. Combined and complex traumas. Features of the examination of persons with trauma and their treatment. The concept of desmurgy. Types of dressings. Typical bandages. Bandaging rules. Types of dressings, that hardening. Plaster of Paris quality tests. Plaster of Paris technique rules. The study of this topic involves theoretical work in the classroom. Work in the simulation center (modeling of transport splints) and specialized departments of the medical institution (interpretation of the obtained data of X-ray examination) according to the agreement on cooperation between the medical institution and the university.

Topic 13. Closed damages of soft tissue. Crush-syndrome. Closed damages of skull, thorax, abdominal cavity, retroperitoneal space.

pr.tr.13 "Closed damages of soft tissue. Crush-syndrome. Closed damages of skull, thorax, abdominal cavity, retroperitoneal space." (full-time course)

The concept of injury. Clinical manifestations of closed damage to soft tissues, skull, chest, abdominal organs. Crash syndrome, etiopathogenesis, clinic, diagnosis, treatment. Prevention of traumatic shock, pneumothorax, internal bleeding. Features of first aid and transportation of patients with these injuries and treatment. The study of this topic involves theoretical work in the classroom. Work in specialized departments of a medical institution (conducting and interpretation of the received data of ultrasound examination) under to the agreement on cooperation between the medical institution and the university.

Topic 14. Dislocations. Fractures.

lect.6 "Damage (trauma). Traumatic disease. Closed damages of soft tissue. Closed damages of skull, thorax, abdominal cavity. Skeletal trauma." (full-time course)

Definition of various types of injuries. Damage of soft tissues, skull, chest, abdominal organs. First aid measures for patients with various types of injuries. Classification and diagnosis of bone fractures. First aid for fractures. The main methods of conservative and surgical treatment of fractures. Outcomes of fracture treatment. Classification and diagnosis of dislocations. Methods of treatment of dislocations. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.14 "Dislocations. Fractures." (full-time course)

Definition of a fracture. Classification. The mechanism of the fracture. Types of displacement of bone fragments. Callus formation. The clinical picture. Diagnostic methods. First aid for fractures, its tasks. Arsenal of transport immobilization. The structure of the Dietrich's and Cramer's splints. Providing first aid to a patient with a fracture. Imposition splints from improvised materials. The main tasks of the treatment of fractures in the hospital. The main types of closed and open treatment. Anesthesia. Fixation and extension methods of treatment. Indications for surgery. Methods of surgical interventions for fractures. Outcomes of fracture treatment. Dislocations, concepts. Classification. The mechanism of occurrence. Clinical manifestations. Differential diagnosis between fracture and dislocation. Treatment of dislocations. The study of this topic involves theoretical work in the classroom. In addition, the study of this topic involves role-playing games. Work at the patient's bedside, interpretation of the obtained data of X-ray examination in the specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), drawing up a treatment plan for the underlying disease.

Topic 15. Wounds. Classification. Phases of wound process.

pr.tr.15 "Wounds. Classification. Phases of wound process." (full-time course)

Wounds, definition, classification. The structure of the wound and the course of the wound process in a clean wound. Characteristics of certain types of wounds and first aid for them. Conditions under which an infection occurs in a wound, and their elimination. The structure of a clean wound. Primary surgical treatment of the wound. Types of primary sutures. Treatment of a clean wound in the postoperative period. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching films with a demonstration of the primary surgical treatment of the wound) followed by discussion. In the absence of quarantine - work in a trauma center.

Topic 16. Treatment of wounds.

lect.7 "Opened damages (wounds)." (full-time course)

Definition and classification of wounds, phases of the wound process. First aid for a patient with a wound. Primary surgical treatment of the wound. Surgical treatment of a purulent wound. Principles of wound treatment depending on the phases of the wound process from the perspective of evidence-based medicine. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.16 "Treatment of wounds." (full-time course)

History of wound healing. Principles of surgical treatment of fresh wounds from the perspective of evidence-based medicine. Primary surgical treatment of the wound. Types of primary sutures. Treatment of a clean wound in the postoperative period. Features of the surgical treatment of purulent wounds. Types of wound healing (primary and secondary intention), the structure of granulation tissue, features of the treatment of purulent wounds with anaerobic infection. Modern antiseptics for the treatment of purulent wounds. Additional methods to stimulate the healing of a purulent wound. Antibiotic therapy, specific and non-specific immunotherapy for purulent wounds from the perspective of evidence-based medicine. The study of this topic involves theoretical work in the classroom. In the absence of quarantine restrictions - work in the purulent dressing room of the surgical department.

Topic 17. Thermal, chemical and radiation burns. Burns disease. Electrical trauma, frostbites, freezing.

lect.8 "Thermal, chemical and radiation burns. Electric trauma. Frostbite and freezing." (full-time course)

Classification and diagnostics of thermal, chemical, radiation burns, electrical injuries. First aid measures for a patient with a burn, electrical trauma. The program of treatment of the patient with burn from the perspective of evidence-based medicine. Classification and diagnosis of frostbite. First aid to a patient with frostbite. Treatment program for a patient with frostbite from the perspective of evidence-based medicine. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

lect.9 "Surgical operation." (full-time course)

Preoperative preparation. Indications for surgery. Determination of contraindications for surgery. Premedication. The degree of risk of the operation. Surgical operation. The main types of surgical interventions. Stages of surgical intervention. The main intraoperative complications. Intraoperative prevention of infectious complications. Postoperative period. The main complications of the early postoperative period. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.17 "Thermal, chemical and radiation burns. Burns disease. Electrical trauma, frostbites, freezing." (full-time course)

Classification of burns by depth, area, severity. Clinical manifestations of thermal burns. Symptoms of burns with chemical substances. Radiation burns. Periods of the course of burn disease. First aid for various types of burns. Treatment of burns in the hospital. Treatment of burn disease according to the course. Types of surgical interventions for burns. Frostbite. Definition. Degrees. Clinical manifestations. Features of rendering first aid to a patient with frostbite in the latent period. Treatment of frostbite in the hospital. Freezing. Stages and first aid. Electrical trauma, features of the course. First aid for electrical trauma. The study of this topic involves theoretical work in the classroom. In the absence of quarantine restrictions - work in the burn department of the hospital (according to the agreement on cooperation between the medical institution and the university).

Topic 18. Local anesthesia. Topical anesthetics. The kinds of local anesthesia. Technique of performing. Possible complications, their prevention and treatment.

pr.tr.18 "Local anesthesia. Topical anesthetics. The kinds of local anesthesia. Technique of performing. Possible complications, their prevention and treatment." (full-time course)

The concept of local anesthesia. The history of its development. The drugs are local anesthetics. Mechanism of action. Indications and contraindications for local anesthesia. Varieties of local anesthesia (terminal, infiltrative, regional anesthesia). Methods of local anesthesia by O. V. Vyshnevsky. Possible complications, their prevention and treatment. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching films with demonstration of various types of novocain blockades) followed by discussion. In the absence of quarantine - work in the operating room, dressing room.

Topic 19. Novocain blockades. Technique of performing. Prevention of complications.

lect.10 "Local anesthesia. History. The kinds of local anesthesia. Possible complications, their prevention and treatment." (full-time course)

Classification of types of local anesthesia. Preparations for local anesthesia. Indications and contraindications for performing of various types of local anesthesia and the technique for their implementation. Possible complications during various methods of local anesthesia, methods of their prevention and treatment. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.19 "Novocain blockades. Technique of performing. Prevention of complications." (full-time course)

Characteristics of novocaine blockade. Technique of paranephric blockade, blockade of abdominal nerves according to Kapis, intrapelvic blockade according to Selivanov. Prevention of complications. The study of this topic involves theoretical work in the classroom, in the absence of quarantine - in the department of anesthesiology.

Topic 20. General anesthesia (narcosis). Theories. History of development. Preparation of patients for narcosis. Kinds of narcosis. Inhalation narcosis.

pr.tr.20 "General anesthesia (narcosis). Theories. History of development. Preparation of patients for narcosis. Kinds of narcosis. Inhalation narcosis." (full-time course)

Substances for inhalation anesthesia (nitrous oxide, halothane, ether, chloroform, cyclopropane). Clinical stages of ether anesthesia. Mask anesthesia, intubation anesthesia. Muscle relaxants, types, mechanism of action. Complications of inhalation anesthesia (regurgitation, recurarization). Their prevention and treatment. Modern multicomponent endotracheal anesthesia. The study of this topic involves theoretical work in the classroom. In the absence of quarantine - work in the operating room, intensive care unit.

Topic 21. Non-inhalation narcosis. Intensive care during and after narcosis.

lect.11 "General anesthesia (narcosis). Theories. History of development. Preparation of patients for narcosis. Kinds of narcosis. Inhalation narcosis. Non-inhalation narcosis." (full-time course)

Classification of types of inhalation anesthesia and methods of their performing. Classification of types of non-inhalation anesthesia. Methods of application of various non-inhalation drugs for anesthesia. Possible complications of anesthesia, their prevention and treatment. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.21 "Non-inhalation narcosis. Intensive care during and after narcosis." (full-time course)

Substances for non-inhalation anesthesia (sodium thiopental, sodium oxybutyrate, hexanal, calypsol). Advantages and disadvantages of non-inhalation anesthesia. Clinical stages of intravenous anesthesia with calypsol, indications and contraindications for its implementation. Neuroleptanalgesia. Ataralgesia. Central analgesia. The drugs used for these types of anesthesia. Indications and contraindications for their use. The study of this topic involves theoretical work in the classroom, in the absence of quarantine restrictions - work in the operating room, intensive care unit and resuscitation.

Topic 22. Resuscitation. History of development. Basic principles of cardiopulmonary resuscitation at the terminal states.

pr.tr.22 "Resuscitation. History of development. Basic principles of cardiopulmonary resuscitation at the terminal states." (full-time course)

Terminal states and their characteristics. Signs of clinical death. The history of the development of intensive care (A. Vesaliy, Garvey, Sylvester, Ingelstrud, Covenhoven). Methods of artificial ventilation of the lungs (by Sylvester, by Schaffer, by Labordi). The technique of closed and open heart massage. Indications for open heart massage. ABC resuscitation rule. Technique of cardiopulmonary resuscitation. The study of this topic involves theoretical work in the classroom. Application of virtual simulation (watching films about cardiopulmonary resuscitation) followed by discussion. The study of this topic involves working in a simulation center (practicing of ABC resuscitation skills). In the absence of quarantine - work in the intensive care unit.

Topic 23. Critical conditions in surgery. Etiopathogenesis. Clinic. Diagnosis. Intensive care.

lect.12 "Critically conditions in surgery. Pathogenesis. Clinical symptoms. Diagnostic. Intensive therapy. Resuscitation. History of development. Basic principles of cardiopulmonary resuscitation at the terminal states." (full-time course)

Clinical manifestations of terminal and critical conditions. Resuscitation methods for terminal and critical conditions. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.23 "Critical conditions in surgery. Etiopathogenesis. Clinic. Diagnosis. Intensive care." (full-time course)

Syncope, pathogenesis, clinic, medical care. Collapse, pathogenesis, clinical picture, treatment. Shock, theory of pathogenesis, classification. Phases of shock according to M.I. Pirogov. Algovver's shock index. Hemorrhagic shock. Classification. Clinic, diagnostics, treatment from the perspective of evidence-based medicine. The study of this topic involves theoretical work in the classroom. In the absence of quarantine restrictions - work at the patient's bedside (according to the agreement on cooperation between the medical institution and the university).

Topic 24. Basis of clinical oncology. Theories of cancer genesis. Clinical symptoms. Diagnostic of malignant tumors.

pr.tr.24 "Basis of clinical oncology. Theories of cancer genesis. Clinical symptoms. Diagnostic of malignant tumors." (full-time course)

Theories of the origin of malignant tumors (Virchow, Congheim, Zilber, polyetiological). Differences between malignant and benign tumors. Hayflick limit for malignant tumors. Precancer, types. Distant metastases (Schnitzler, Virchow, Krukenberg, sister Mary-Joseph). Ways of metastasis of malignant tumors. Stages of malignant tumors. International classification of tumors according to the TNMPG system. The study of this topic involves theoretical work in the classroom, solving situational problems. In the absence of quarantine restrictions - work in the departments of Sumy Regional Clinical Oncology Dispensary (according to the agreement on cooperation between the medical institution and the university).

Topic 25. Modern principles of treatment of malignant tumors.

lect.13 "Basis of clinical oncology. Theories of carcinogenesis. Clinical symptoms. Diagnostic of malignant tumors. Modern principles of treatment of malignant tumors." (full-time course)

Classification of tumors, clinical groups of patients with cancer. Diagnostics of benign and malignant tumors. Differential diagnosis of malignant and benign growth. Modern methods of tumor treatment from the perspective of evidence-based medicine. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.25 "Modern principles of treatment of malignant tumors." (full-time course)

Surgical, combined, complex methods of treatment of malignant tumors from the perspective of evidence-based medicine. The principles of ablative and antitumor. Types of radical operations. Radiation therapy. Kinds. Methods of conducting. Chemotherapy. Types, preparations. Groups of chemotherapy drugs (alkylating, antimetabolites, antitumor antibiotics). Complications of chemotherapy, prevention and treatment. Hormone therapy (ablative, antagonistic, additive). Immunotherapy of malignant tumors (specific, non-specific) from the perspective of evidence-based medicine. The study of this topic involves theoretical work in the classroom, work in the specialized departments of the Sumy Regional Clinical Oncology Dispensary (according to the agreement on cooperation between the medical institution and the university).

Topic 26. Anomalies of development and monstrosities.

pr.tr.26 "Anomalies of development and monstrosities." (full-time course)

Etiology of malformations and monstrosities. Endogenous and exogenous factors. Classification of developmental defects. Congenital defects of the heart and main vessels. Atavistic deformities (ichthyosis, polymastia, polythelia, hermaphroditism). Malformations of the gastrointestinal tract (pyloric stenosis, Meckel's diverticulum, Hirschsprung's disease). Epispadias, hypospadias, cryptorchidism, phimosis, paraphimosis. Clinic, diagnostics. Surgical treatment. De Giorgi syndrome, Klippel-Feil disease. Prevention of congenital malformations. The history of the development of plastic surgery (Branko, M.I. Pirogov, Yanovich-Chainsky, Reverden, V. Filatov, Carrel, Paget). Transplantation, types of transplantation (autogenous, allogeneic, isogenic, xenogenic). Heart transplantation, history, biological and legal aspects. Kidney transplant. Replacement of limbs. The reaction of tissue incompatibility and ways to overcome it. Methods of dermoplasty. Brepheoplasty. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching films on this pathology) followed by discussion.

Topic 27. Insufficiency of blood and lymph circulation. Embolism and thrombosis of vessels. Etiology and pathogenesis. Clinic. Diagnostic. Treatment.

pr.tr.27 "Insufficiency of blood and lymph circulation. Embolism and thrombosis of vessels. Etiology and pathogenesis. Clinic. Diagnostic. Treatment." (full-time course)

Etiopathogenesis. Clinic. Diagnosis. Treatment of acute arterial obstruction. Stages of ischemia. Obliterating endarteritis. Lericq's syndrome, Takayashi's disease, Raynaud's disease. Stages of chronic arterial obstruction. Tests by Oppel, Samuels, Moshkovich. Acute and chronic venous insufficiency. Tests by Troyanov-Trendelenburg, Pratt, Delbe-Perthes. Paget-Schretter-Christelli disease. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching films with demonstration of tests to identify chronic arterial obstruction and chronic venous insufficiency) followed by discussion. In addition, the study of this topic involves the acquisition of practical skills of palpation, auscultation at the patient's bedside in the vascular department of a medical institution (according to the agreement on cooperation between the medical institution and the university). Interpretation of the results of laboratory and instrumental methods of examination.

Topic 28. Necrotic processes (gangrene, trophic ulcers, fistulae, bedsores).

lect.14 "Insufficiency of blood and lymph circulation. Embolism and thrombosis of vessels. Necrotic processes (gangrene, trophic ulcers, fistulae, bedsores)." (full-time course)

Diagnosis of disorders of blood and lymph flow. Clinical manifestations of vascular diseases, modern methods of diagnosis and treatment from the perspective of evidence-based medicine. Definition, etiopathogenesis and classification of necrosis, gangrene, ulcers, fistulas. Factors contributing to their development, clinic, diagnosis, modern methods of treatment and prevention of various types of necrosis, gangrene, ulcers, fistulas. Teaching is carried out in the form of multimedia lectures (in the presence of quarantine - on-line).

pr.tr.28 "Necrotic processes (gangrene, trophic ulcers, fistulae, bedsores)." (full-time course)

Classification of necrosis. Types of gangrene. Etiopathogenesis of development, mortifications. Complex treatment of gangrene from the perspective of evidence-based medicine. Trophic ulcers. Diagnostics, treatment. Bedsores. Etiopathogenesis, prevention and treatment. Fistulas. Classification, diagnosis, treatment. The study of this topic involves theoretical work in the classroom. In the absence of quarantine restrictions - work at the patient's bedside in the specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university). Drawing up a treatment plan for the patient.

Topic 29. General examination of surgical patients: rules and principles of anamnestic examination. Objective examination of skin, its appendages, of peripheral lymph nodes.

pr.tr.29 "General examination of surgical patients: rules and principles of anamnestic examination. Objective examination of skin, its appendages, of peripheral lymph nodes." (full-time course)

Methods of collecting anamnesis. Objective examination of the skin, subcutaneous tissue, mucous membranes and lymph nodes. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching films about different methods of examining a surgical patient) followed by discussion. In addition, the study of this topic involves work at the patient's bedside in the specialized departments of a medical institution (according to the agreement on cooperation between the medical institution and the university). Interpretation of the results of laboratory and instrumental methods of examination, drawing up a treatment plan.

Topic 30. Technique of examination of head, neck, mammary glands, chest, abdomen.

pr.tr.30 "Technique of examination of head, neck, mammary glands, chest, abdomen." (full-time course)

Objective examination of the neck, chest, abdomen, breast. The study of this topic involves theoretical work in the classroom, the use of virtual simulation (watching films with methods of functional and instrumental research of the respiratory system - breathing tests, chest x-ray, ultrasound, capnography, scintigraphy, spirometry) followed by discussion. Work in a simulation center with breathing tests. Interpretation of the data obtained from the study of the function of external respiration (spirometry), X-ray and ultrasound examination of the chest, abdominal cavity in the specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), drawing up a treatment plan for the underlying disease and providing emergency care.

Topic 31. Methods for examining the muscular, vascular and nervous systems. Methods of examination of the perineum and rectum and musculoskeletal systems.

pr.tr.31 "Methods for examining the muscular, vascular and nervous systems. Methods of examination of the perineum and rectum and musculoskeletal systems." (full-time course)

Objective examination of the muscular, vascular and nervous systems, perineum, rectum, musculoskeletal system. The study of this topic involves theoretical work in the classroom. Work in a simulation center and specialized departments of a medical institution (conducting and interpreting the data obtained from the study of PCG, ECG, functional tests, X-ray and ultrasound examination (according to the agreement on cooperation between the medical institution and the university)).

Topic 32. Study of the medical history of a surgical patient. Supervision of surgical patients.

pr.tr.32 "Study of the medical history of a surgical patient. Supervision of surgical patients." (full-time course)

Study of medical history. Work of students with patients. Collection of complaints, anamnesis of the disease and life. Objective examination of the patient. Study of additional methods of examination of patients. Entering data into the educational form of the medical history. The study of this topic involves theoretical work in the classroom. Work in specialized departments of a medical institution (conducting and interpreting the data obtained from the study of PCG, ECG, functional tests, X-ray and ultrasound studies (according to the agreement on cooperation between the medical institution and the university)).

Topic 33. Examination of the surgical patient and observation during his treatment.

pr.tr.33 "Examination of the surgical patient and observation during his treatment." (full-time course)

Work of students with patients. Participation in the dressings of operated patients. Monitoring patients in the postoperative period. The study of this topic involves theoretical work in the classroom, role-playing games. Work in specialized departments of a medical institution (conducting and interpreting the data obtained from the study of PCG, ECG, functional tests, X-ray and ultrasound examinations (according to the agreement on cooperation between the medical institution and the university)).

Topic 34. Registration of medical history.

<p>pr.tr.34 "Registration of medical history." (full-time course)</p> <p>Final registration of the medical history. The study of this topic involves theoretical work in the classroom. In addition, the study of this topic involves role-playing games. Work at the patient's bedside, interpretation of the obtained data of X-ray and ultrasound examination in the specialized departments of the medical institution (according to the agreement on cooperation between the medical institution and the university), preparation of a treatment plan for the underlying disease.</p>
<p>Topic 35. Defense of case history.</p>
<p>pr.tr.35 "Defense of case history." (full-time course)</p> <p>Students substantiate the diagnosis, demonstrate methods of objective examination of patients, discuss methods of treatment of patients, demonstrate knowledge of modern drugs and methods of treatment. Carrying out the analysis and discussion of the mistakes, which have been made at registration of medical histories by students. The study of this topic involves theoretical work in the classroom. In addition, the study of this topic includes role-playing games, improving the skills of palpation, percussion and auscultation when working at the patient's bedside in the specialized department (in the absence of quarantine restrictions), drawing up a plan of examination and treatment.</p>
<p>Topic 36. Final module control.</p>
<p>pr.tr.36 "Final module control." (full-time course)</p> <p>Final modular control. Computer testing.</p>

7.2 Learning activities

LA1	Writing and protectining of case history
LA2	Self-study
LA3	Preparation for differential credit
LA4	Preparation for practical classes
LA5	E-learning in systems (Zoom, MIX.sumdu.edu.ua)
LA6	Watching educational films
LA7	Preparing for Croc-1
LA8	Interpretation of laboratory (clinical analysis of blood, urine, biochemical analysis of blood, immunological tests, etc.) and instrumental (EFGDS, ultrasound, CT, radiography, etc.) methods of examination
LA9	Analysis of clinical cases
LA10	Practical work with the patient in the specialized departments of the hospital
LA11	Individual research project (student scientific work, article, abstracts, etc.)
LA12	Work with textbooks and relevant information sources
LA13	Practical skills training in the simulation center
LA14	Practice manual skills in applying bandages to different parts of the body

8. Teaching methods

Course involves learning through:

TM1	Case-based learning (CBL). Learning based on the analysis of a clinical case, situation
TM2	Team-based learning (TBL). Team-oriented training
TM3	Educational discussion / debate
TM4	Brain storm
TM5	Role-playing game
TM6	Interactive lectures
TM7	Research-based learning (RBL). Learning through research

Practical classes allow you to plan a scheme of examination of a surgical patient and interpret the results of research, diagnose and provide emergency care in emergencies. Execution of situational tasks will allow to analyze the tactics of examination of patients with different surgical nosology, to make a treatment plan, to form risk groups for the occurrence of intra- and postoperative complications. Practical demonstrations include the interpretation of laboratory, radiation, instrumental, bacteriological methods of research, diagnosis and emergency care in emergency conditions in patients with various surgical diseases.

GC 1. Ability to abstract thinking, analysis, and synthesis. GC 2. Ability to learn, master modern knowledge, and apply the knowledge in practice. GC 3. Knowledge and understanding of the subject area and professional activity comprehension. GC 4. Ability to adapt and act in a new situation. GC 5. Ability to make reasoned decisions; teamwork ability; interpersonal skills. GC 7. Ability to use information and communication technologies. GC 8. Determination and persistence on the tasks and commitments undertaken.

9. Methods and criteria for assessment

9.1. Assessment criteria

ECTS	Definition	National scale	Rating scale
	Outstanding performance without errors	5 (Excellent)	$170 \leq RD \leq 200$
	Above the average standard but with minor errors	4 (Good)	$140 \leq RD < 169$
	Fair but with significant shortcomings	3 (Satisfactory)	$120 \leq RD < 139$
	Fail – some more work required before the credit can be awarded	2 (Fail)	$0 \leq RD < 119$

9.2 Formative assessment

FA1	Defence of case history
FA2	Interviews and oral comments of the teacher on his results
FA3	Checking and evaluating written assignments

FA4	Peer assessment
FA5	Testing
FA6	Defense of an individual research project (presentation at a conference, competition of scientific works)
FA7	Teacher's instructions in the process of performing practical tasks
FA8	Solving clinical cases
FA9	Assessment of manual skills in desmurgy

9.3 Summative assessment

SA1	Evaluation of written works, questioning, solving a clinical case
SA2	Protection of medical history
SA3	Testing
SA4	Final control: practice-oriented differential test (according to the regulations)
SA5	Defense of an individual research project (incentive activities, additional points)

Form of assessment:

5 semester		200 scores
SA1. Evaluation of written works, questioning, solving a clinical case		100
		100
SA2. Protection of medical history		10
		10
SA3. Testing		10
		10
SA4. Final control: practice-oriented differential test (according to the regulations)		80
	Answer to theoretical questions (3x15)	45
	Execution of a practical task	15
	Providing emergency care	20

Form of assessment (special cases):

5 semester		200 scores
SA1. Evaluation of written works, questioning, solving a clinical case		100
	In case of quarantine restrictions evaluation of written works, questioning, solving a clinical case are carried out remotely using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	100
SA2. Protection of medical history		10

	In case of quarantine restrictions the protection of medical history is carried out remotely using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	10
SA3. Testing		10
	In case of quarantine restrictions testing is carried out remotely using the Mix.sumdu.edu.ua platform.	10
SA4. Final control: practice-oriented differential test (according to the regulations)		80
	In case of quarantine restrictions the differential test is carried out remotely using the platform Mix.sumdu.edu.ua, Zoom, Google meet.	80

When mastering the materials of the module, the student is assigned a maximum of 5 points for each practical lesson (the mark is set in the traditional 4-point grading system). At the end of the academic year, the arithmetic mean of the student's performance is calculated. The maximum number of points that a student can receive in practical classes during the academic year is 100. The number of points of the student is calculated using the formula 100 multiplied by the arithmetic mean and divided by 5. For writing a medical history are assigned the following points: "5" - 5 points, "4" - 4 points, "3" - 3 points, "2" - 0 points. Defense history: "5" - 5 points, "4" - 4 points, "3" - 3 points, "2" - 0 points. In total, a student can receive a maximum of 10 points for the history of the disease, the minimum required score is 6. For diagnostic testing, a student receives a maximum of 10 points. The minimum number of points that a student must receive is 6 points. The maximum number of points for the current educational activity of the student is 120. The student is admitted to the differential credit if the requirements of the curriculum are met and if he scored at least 72 points for the current educational activity: 60 points during practical classes, 6 points for medical history and 6 points for testing. Practice-oriented differential credit is held according to the timetable at the end of the semester. Exam tickets contain 3 theoretical questions on various topics and cover all sections of the academic discipline (15 points each), 1 practical task (15 points) and issues of emergency assistance (20 points). The exam is credited to the student if he scored at least 48 points out of 80. Incentive points are added to the grade for the discipline for the implementation of an individual research project (defense of student scientific work 12 points, presentation at the conference 5 points, poster presentation at the conference 4 points, abstracts 3 points).

10. Learning resources

10.1 Material and technical support

MTS1	Information and communication systems
MTS2	Library funds, archive of radiographs, computer tomograms, results of laboratory methods of inspection
MTS3	Computers, computer systems and networks
MTS4	Medical equipment (surgical instruments, dressings, transport and immobilization splints, means of cardiopulmonary resuscitation, height meter, scales, fibrogastroscopy, tonometer, phonendoscope, etc.)
MTS5	Multimedia, video and sound reproduction, projection equipment (video cameras, projectors, screens, smart boards, etc.)

MTS6	Software (to support distance learning, online surveys, virtual laboratories, virtual patients, to create computer graphics, modeling, etc.)
MTS7	Simulation center (phantom of an adult for primary resuscitation with a set of equipment)
MTS8	"Sumy Regional Clinical Hospital"

10.2 Information and methodical support

Essential Reading	
1	General Surgery : textbook / S. D. Khimich, M. D. Zheliba, V. P. Andryushchenko etc. ; eds. : S. D. Khimich, M. D. Zheliba. — Kyiv : AUS Medicine Publishing, 2019. — 536 p. + Гриф МОН. – ISBN 978-617-505-746-9.
2	General surgery = Загальна хірургія : textbook / V. P. Andriushchenko, Ya. S. Berezhnytsky, A. V. Verba etc. ; ed. by: Ya. S. Berezhnytsky, M. P. Zakharash, V. H. Mishalov, V. O. Shidlovskiyi. — Vinnytsia : Nova Knyha, 2019. — 328 p.
3	Patient Care. Practical Course [Текст] : textbook / O. M. Kovalyova, V. M. Lisovyi, R. S. Shevchenko etc. — 2-nd ed., corrected. — K. : Medicine Publishing, 2018. — 320 p. + Гриф МОН; Гриф МОЗ. ISBN 978-617-505-651-6
Supplemental Reading	
1	Global Surgery [Електронний ресурс] : The Essentials / edited by Adrian Park, Raymond Price. — 1st ed. 2017. — Cham : Springer International Publishing, 2017. — XIV, 597 p. 193 illus., 168 illus. in color.
2	Introduction to Surgery for Students [Електронний ресурс] / edited by Rebecca A. Fisher, Kamran Ahmed, Prokar Dasgupta. — 1st ed. 2017. — Cham : Springer International Publishing, 2017. — XVII, 416 p. 263 illus., 230 illus. in color.
3	Operative Dictations in General and Vascular Surgery [Електронний ресурс] / edited by Jamal J. Hoballah, Carol E. H. Scott-Conner, Hui Sen Chong. — 3rd ed. 2017. — Cham : Springer International Publishing, 2017. — XXXV, 960 p.
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