



**CD8.5.1 DISCIPLINE SYLLABUS FOR  
UNIVERSITY STUDIES**

<b>Edition:</b>	<b>09</b>
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**FACULTY MEDICINE NR.2**

**STUDY PROGRAM 0912.1 MEDICINE**

**DEPARTMENT GENERAL SURGERY AND SEMIOLOGY NO.3**

APPROVED

at the meeting of the Commission for Quality Assurance and Evaluation of the Curriculum Faculty Medicine  
Minutes No. \_\_\_ of \_\_\_\_\_  
Chairman, PhD, MD  
Suman Serghei \_\_\_\_\_

(signature)

APPROVED

at the Council meeting of the Faculty Medicine No.2  
Minutes No. \_\_\_ of \_\_\_\_\_  
Dean of Faculty, PhD, MD  
Bețiu Mircea \_\_\_\_\_

(signature)

APPROVED

at the meeting of the chair of General Surgery and Semiology no.3  
Minutes No. 09 of 12 of January 2022  
Head of chair, PhD, professor  
Guțu Evghenii \_\_\_\_\_

**SYLLABUS**

**DISCIPLINE GENERAL SURGERY AND SEMIOLOGY**

**Integrated studies**

Type of course: **Compulsory**

Curriculum developed by the team of authors:

Guțu Evghenii PhD, professor  
Iacob Vladimir, dr. of med., associate professor

Chisinau, 2022



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### I. INTRODUCTION

• **General presentation of the discipline: place and role of the discipline in the formation of the specific competences of the professional / specialty training program**

The discipline of general surgery and semiology is the compulsory course, which the students study on the III-rd year of University in the Cycle I. The knowledge obtained at our discipline will serve for students as background for understanding of clinical disciplines in the following years and in their professionally activities.

• **Mission of the curriculum (aim) in professional training**

The aim of the discipline is studying of main elements of asepsis and antisepsis in surgery, study of basic surgical pathologic processes and disorders of homeostasis, and semiology of the inflammatory, ischemic, hemorrhagic, necrotic, and traumatic syndromes. Studying and learning of practical maneuvers in desmurgy, surgical processing and suture placing on skin wound, venous and arterial line placing, urinary bladder catheterization, gastric lavage, thoracocentesis and tube thoracostomy, and paracentesis.

- **Language (s) of the discipline:** Romanian, English, Russian, France;
- **Beneficiaries:** students of the III-rd year, faculty medicine nr.1 and nr.2.

### II. MANAGEMENT OF THE DISCIPLINE

Code of discipline		S.05.O.041 / S.06.O.048	
Name of the discipline		General Surgery and Semiology	
Person(s) in charge of the discipline		Professor, PhD Evghenii Gutu	
Year	III-rd	Semester/Semesters	V, VI
Total number of hours, including:			120/120
Lectures	30/30	Practical/laboratory hours	25/25
Seminars	20/22	Self-training	45/45
Form of assessment	E	Number of credits	4/4



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### III. TRAINING AIMS WITHIN THE DISCIPLINE

*At the end of the discipline study, the student will be able to:*

- **at the level of knowledge and understanding:**
  - ✓ To know the semiology of surgical diseases and deformities of the chest;
  - ✓ To know the semiology of inflammatory, dyshormonal and tumoral disorders of the breast;
  - ✓ To know the semiology of conditions which may cause acute abdomen;
  - ✓ To know the semiology traumatic injuries of the musculoskeletal system;
  - ✓ To know the semiology of surgical disorders of the peripheral venous and arterial vascular system;
  - ✓ To understand definition, forms and semiology of diabetic foot, to assimilate knowledge concerning the principles of prophylaxis and treatment of condition;
  - ✓ To have theoretical knowledge about semiology of nutritional disturbances, principles of enteral and parenteral feeding;
  - ✓ To know the principles and terminology of transplantology and its theoretical basis.
- **at the application level:**
  - ✓ To perform clinical examination of a patient with surgical pathology and to be able to describe the findings into academic history of diseases;
  - ✓ To perform preparation of hands and operative field for surgery and another invasive medical procedures;
  - ✓ To be able to perform infiltrative local anesthesia;
  - ✓ To make assessment of hemodynamic parameters in bleeding;
  - ✓ To apply techniques of temporary and definitive artificial hemostasis;
  - ✓ To perform blood transfusions, compatibility tests, monitoring during and after procedure and its protocol;
  - ✓ To make intramuscular, subcutaneous, intracutaneous injections;
  - ✓ To make puncture and catheterization of venous and arterial vessels;
  - ✓ To make urethral catheterization in men and women;
  - ✓ To install the gastric and esophageal tubes;
  - ✓ To provide first aid of traumatized patient;
  - ✓ To make primary debridement of surgical wound;
  - ✓ To select the antiseptics, ointment and other medications for local treatment in different phases of wound healing process;
  - ✓ To perform wound suturing and surgical knot tying;
  - ✓ To apply the triangular, cravat, rolling and elastic bandages at various parts of the body;
  - ✓ To determinate muscular tenderness, peritoneal signs and other symptoms of acute abdomen;



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- ✓ To assess the pulsation of peripheral arteries and another symptoms of arterial insufficiency, and to be able to interpret obtained results;
  - ✓ To interpret the functional probes in chronic venous insufficiency of lower limbs;
  - ✓ To assess the nutritional status using anthropometrical methods;
  - ✓ To perform history taking, physical examination of patient and schedule the patient's history.
- **at the integration level:**
- ✓ To integrate the acquired concepts in fundamental knowledge on anatomy, histology, physiology and pathological physiology, biochemistry etc;
  - ✓ To integrate acquired knowledge in their further practical application;
  - ✓ To integrate acquired theoretical knowledge with internal diseases semiology;
  - ✓ To use principles in diagnosis of syndromes: inflammatory, hemorrhagic, necrotic, ischemic, occlusive and traumatic.

### IV. PROVISIONAL TERMS AND CONDITIONS

The students of the III-rd years require the followings:

- To know the language of teaching;
- To have a knowledge of previous discipline from the I and II years (anatomy, biochemistry, physiology, pathology, pathophysiology);
- To have a competence of IT (to be able to use an internet, processing of document, e-tables and e-presentations);
- To be able for communication and team working;
- To have quality of tolerance, compassion, autonomy.

### V. THEMES AND ESTIMATE ALLOCATION OF HOURS

*Lectures, practical hours/ laboratory hours/seminars and self-training*

No. d/o	THEME	Number of hours		
		Lectures	Practical hours	Self-training
1.	History of global and domestic surgery. Surgical clinics. Organization of surgical assistance.	2	3	3
2.	Asepsis. Prevention of surgical site infection.	2	3	3
3.	Prevention of airborne, contact infection, and contamination by implantation in surgery.	2	6	3
4.	Antisepsis. Definition, classification. The main groups of antiseptics.	2	3	3
5.	Bleeding. Pathophysiological changes in bleeding. Classification, semiology and diagnosis of hemorrhages.	2	3	3
6.	Spontaneous hemostasis. Phases and pathways of hemostasis. Mechanical, physical, chemical and biological methods of surgical hemostasis.	2	3	3
7.	Blood transfusion. Indications and contraindications to blood transfusion. Blood components and derivatives. Procedure of blood transfusion.	2	3	3



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No. d/o	THEME	Number of hours		
		Lectures	Practical hours	Self-training
8.	Complications of blood transfusion. Semiology, prophylaxis and treatment of hemolytic shock.	2	3	3
9.	Semiology of nutritional disturbances. Parenteral and enteral nutrition.	2	3	3
10.	Surgical intervention: definition, classification. Preoperative period and postoperative management.	2	3	3
11.	Surgical instruments. Sutures, knots and basic surgical skills.	2	3	3
12.	Local anesthesia.	2	3	3
13.	Desmurgy: concept, types of bandages. General rules of dressing and bandaging.	2	3	3
14.	Wounds: classification, local symptoms. Natural history of wound healing.	2	3	3
15.	Wound's treatment. Primary surgical debridement of wound. Types of wounds' closure. Local and general treatment of wounds.	2	3	3
16.	Minor invasive surgical manipulations: injections, central venous access, thoracic, abdominal, gastrointestinal and urological procedures.	2	3	3
17.	Surgical infection: etiopathogenesis, pathophysiology, local and general symptoms.	2	3	3
18.	Semiology of acute purulent processes of soft tissue: furuncle, carbuncle, hydrosadenitis, abscess, phlegmon, mastitis, paraproctitis, erysipelas, pilonidal abscess, bedsores, fistulas.	2	3	3
19.	Semiology of felon and hand's phlegmon. Principles of conservative and surgical treatment.	2	3	3
20.	Anaerobic soft tissue infection. Semiology of gas gangrene. Semiology of anaerobe non-clostridium infection. Tetanus. General principles of treatment and prophylaxis.	2	3	3
21.	Surgical sepsis: terminology, classification. Clinical criteria of SIRS. Clinical manifestations, diagnosis and treatment of sepsis.	2	3	3
22.	General surgical semiology. Diagnostic process. Semiology of breast diseases: complains, history and physical examination.	2	3	3
23.	Acute abdomen. Groups of diseases. General semiology of acute abdomen: complains, history and physical examination.	2	3	3
24.	Semiology of acute abdomen, caused by abdominal inflammatory processes, perforation of hollow organs, intraabdominal bleeding, and intestinal obstruction.	2	3	3
25.	Trauma. Injuries of the head, chest, abdomen and skeletal system.	2	3	3



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No. d/o	THEME	Number of hours		
		Lectures	Practical hours	Self-training
26.	Semiology of arterial diseases of the extremities: acute and chronic arterial insufficiency, aneurysm of the peripheral arteries. Dry and dump gangrene.	2	3	3
27.	Semiology of venous diseases of the extremities: chronic venous insufficiency, venous thrombosis, elephantiasis.	2	3	3
28.	Diabetic foot: surgical aspects.	2	3	3
29.	Basic transplantology.	2	3	3
30.	Practical exam.	2	3	3
		<b>60</b>	<b>90</b>	<b>90</b>
<b>Total</b>		<b>240</b>		

## **VI. PRACTICAL TOOLS PURCHASED AT THE END OF THE COURSE**

Mandatory essential practical tools are:

1. Application the triangular bandage on the head
2. Application the triangular bandage on the shoulder
3. Application the triangular bandage on the thorax
4. Application the triangular bandage on the hip
5. Application the triangular bandage on the foot
6. Application the triangular bandage on the hand
7. Application the “cap” bandage on the head
8. Application the Hippocratte’s bandage on the head
9. Application the four-tailed bandage on the nose
10. Application the four-tailed bandage on the chin
11. Application the four-tailed bandage on the forehead
12. Application the cravat bandage on the forearm
13. Application the cravat bandage on the knee
14. Application the cravat bandage on the axilla
15. Application the roller bandage on the radio-carpal joint
16. Application the roller bandage on the thumb
17. Application the roller bandage on the one finger
18. Application the roller bandage on the all finger of the hand
19. Application the roller bandage on the ankle
20. Application the roller bandage on the calf
21. Application the roller bandage on the knee
22. Application the convergent bandage on the elbow
23. Application the divergent bandage on the elbow
24. Application the immobilizations of arm with Kramer’s splint
25. Application the Dieterihs splint



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26. Application hemostatic tourniquet on upeer/lower extremity
27. Scrubbing of hands for surgery
28. Demonstration the way of dressing of sterile surgical coat and surgical gloves
29. Preparing and isolation with drapes surgical field
30. Choosing the instruments for dissection of tissues
31. Choosing the instruments for hemostasis
32. Choosing the instruments for tissues holding
33. Choosing the wound retractors
34. Choosing the instruments for tissues suturing
35. Choosing the instruments for exploration
36. Choosing the laparoscopic instruments
37. Demonstration the correct handing of scalpel, pencet and locking and unlocking of surgical clump
38. Demonstration the correct handing of Gigli saw
39. Choosing the biological, sintetic resorbabele and nonresorbabele surgical sutures
40. Applying the simple suture on skin
41. Applying the suture on skin by Blair-Donati
42. Applying the suture on skin in form of "U"
43. Applying the continuous intra dermal suture
44. Ligation the simple (direct) knot on surface of the wound
45. Ligation the surgical knot on surface of the wound
46. Ligation the sliding knot on surface of the wound
47. Ligation the knot in deep cavity
48. Ligation the simple surgical knot using of surgical instrument
49. Removing the sutures from the wound
50. Performing of the intracutaneous, intramuscular and intravenous injections
51. Performing the pleural puncture in case of hydrothorax
52. Performing the thoracentesis in case of pneumothorax
53. Performing the thoracentesis in case of hemothorax
54. Performing the urethral catheterization in male
55. Performing the urethral catheterization in female

## **VII. OBJECTIVES AND CONTENT UNITS**

<b>Objectives</b>	<b>Content units</b>
<b>Theme 1. History of global and domestic surgery. Surgical clinics. Organization of surgical assistance.</b>	



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<b>Objectives</b>	<b>Content units</b>
<ul style="list-style-type: none"><li>• To know the stages of surgery development.</li><li>• To know the steps of surgeons formation in Moldova.</li></ul>	The main periods of formation and development of surgery. Surgery in Moldova. The clinics and departments of surgery in Moldova. Stages of study surgery in Moldova. The principles of surgical assistance in Moldova.
<b>Theme 2. Asepsis. Prevention of surgical site infection.</b>	
<ul style="list-style-type: none"><li>• To define the definition of asepsis.</li><li>• To know the classification of asepsis.</li><li>• To demonstrate the ways of transmission of infections and its prevention.</li><li>• To apply methods of prevention of contaminations.</li><li>• To integrate the obtained knowledge with clinical disciplines.</li></ul>	Nosocomial infection: definition, the most common types, clinical manifestations. Surgical site infection: definition, classification, bacteriology. Asepsis: definition and objectives. Exogenous and endogenous infection. Sources and ways of exogenous contamination (airborne spread, contact spread, contamination by implantation of infected materials).
<b>Theme 3. Prevention of airborne, contact infection, and contamination by implantation in surgery.</b>	
<ul style="list-style-type: none"><li>• To know the classification of asepsis.</li><li>• To demonstrate the ways of transmission of infections and its prevention.</li></ul>	Prevention of airborne infection in surgery. Planning of surgical department. Personnel medical clothes in surgical department. Rules of activity in surgical department. Sanitary regulations for planning of operating room. Types of cleaning in the operating room. Prevention of contact infection in surgery. Spaulding classification of medical equipment. Sterilization and disinfection. Rules of activity for “scrubbed” and “unscrubbed” personnel in the operating room. Surgeons’ hands disinfection prior to surgical intervention: classic and novel methods. Steps of surgeon’s hands scrub for surgery. Rules of dressing of sterile





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<ul style="list-style-type: none"> <li>To apply methods of prevention of contaminations.</li> <li>To integrate the obtained knowledge with clinical disciplines.</li> </ul>	<p>surgical gown and sterile surgical gloves. Rules of skin decontamination of operating field. Delimitation of operating field with sterile surgical drapes. General principles of sterilization. Physical methods of sterilization: flame sterilization and boiling, sterilization by heat steam under pressure, dry-heat sterilization, sterilization by ionizing radiation. Chemical methods of sterilization: gas sterilization and sterilization in antiseptic solutions. Methods of sterilization of surgical drapes and bandages in Schimmelbusch containers: autoclaving under pressure, sterilization by flowing steam. Regime of sterilization in the autoclave. Decontamination, cleaning and sterilization of surgical instruments. Regime of surgical instruments sterilization by dry-heat. Quality control of sterilization of surgical items: direct (bacteriologic) and indirect methods.</p> <p>Definition, sources and features of contamination by implantation of infected materials in surgery. Sterilization of implantable items.</p> <p>Common sources of endogenous infection. Antibacterial prophylaxis: indications for various types of surgical procedures, drug selection, rules of administration.</p>

**Theme 4. Antisepsis. Definition, classification. The main groups of antiseptics.**

<ul style="list-style-type: none"> <li>To define the definition of antisepsis.</li> <li>To know the classification of antisepsis.</li> <li>To apply methods of antisepsis.</li> <li>To integrate the obtained knowledge with clinical disciplines.</li> </ul>	<p>Antisepsis: definition and classification. Difference from asepsis. History of antisepsis and asepsis: empiric period, asepsis, antisepsis of XIX-th century, Lister's asepsis, antisepsis, contemporary surgical asepsis, and antisepsis.</p> <p>Mechanical antisepsis: concept, description. Methods of mechanical antisepsis: wound toilet, primary and secondary surgical processing of wound.</p> <p>Physical antisepsis: concept, description, main methods. Mechanism of antiseptic action of hygroscopic dressing's material (gauze) and hypertonic saline solution. Methods of surgical drainage: passive, active and flow-irrigative. Additional methods of physical antisepsis: drying, processing with water jet, ultrasound, high-energy (surgical) laser, ultra-violet rays.</p> <p>Chemical antisepsis: concept, description. Main groups of antiseptics: haloids, salts of heavy metals, spirits, aldehydes, phenols, dyes, acids, alkalis, oxidants, detergents, derivates of nitrofurane, derivates of 8-oxiquinoline, derivates of quinoxaline, derivates of nitromidazole, sulfonamide. Vegetable antiseptics. Concept of antiseptics and disinfectants.</p> <p>Biological antisepsis: concept, description. Biological antiseptics with direct (antibiotics, protein-degrading enzymes, bacteriophages, medical serums) and indirect (immunostimulating substances, vaccines, anatoxins, physical methods stimulate nonspecific resistance) action. Antibiotics: concept, groups. Complications of treatment with antibiotics. Principles of rational treatment with antibiotics.</p>
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**Theme 5. Bleeding. Pathophysiological changes in bleeding. Classification, semiology and diagnosis of hemorrhages.**

<ul style="list-style-type: none"> <li>To define the definition of bleeding.</li> <li>To know existing classifications</li> </ul>	<p>Hemorrhage: definition, clinical importance. Classification of bleeding (anatomical, by mechanism of occurrence, by site of the bleeding, by time of development, by evolution-intensity, and by severity of blood loss).</p> <p>Definition of massive bleeding. Physiological mechanisms of compensation in hemorrhage: increase of venous tone, tachycardia, "centralization of circulation", hyperventilation, hemodilution, renal mechanism with oliguria,</p>
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<p>of bleeding.</p> <ul style="list-style-type: none"> <li>To know the adaptive and pathological mechanisms in hemorrhage.</li> </ul>	<p>release of red blood cells from the “depot”. Pathological mechanisms of decompensation in hemorrhage: myocardial ischemia, debilitation of sympathetic nervous system, decentralization of circulation, brain ischemia, disturbances of metabolism and exchange of gases, systemic inflammatory response, modification of microcirculation of white blood cells and platelets. General symptoms of bleeding. Semiology of internal intraluminal bleeding. Semiology of internal intracavitary bleeding. Semiology of internal intratissular bleeding. Petechia, purpura, ecchymosis, hematoma. Methods of laboratory and instrumental diagnostics of bleeding.</p> <p>Determination of blood loss volume: Allgöwer shock index, basing on red blood cells count, gravimetric method, Gross formula.</p>
<p><b>Theme 6. Spontaneous hemostasis. Phases and pathways of hemostasis. Mechanical, physical, chemical and biological methods of surgical hemostasis.</b></p>	
<ul style="list-style-type: none"> <li>To know the phases and pathways of spontaneous blood clotting.</li> <li>To integrate the knowledge from different disciplines in describing of DIC-syndrome.</li> <li>To apply methods of surgical hemostasis.</li> </ul>	<p>Physiologic (spontaneous) hemostasis. Main phases of blood coagulation: vasoconstriction or vascular phase of hemostasis, platelet aggregation or cellular phase of hemostasis, activation of coagulation cascade or plasmatic phase of hemostasis. Intrinsic, extrinsic and common pathway of hemostasis. Mechanisms for limitation of local coagulation process.</p> <p>Syndrome of disseminated intravascular coagulation (DIC): etiology and pathogenesis. Semiology of DIC depending on the phase of disease.</p> <p>Laboratory diagnosis and principles of treatment.</p> <p>Medical treatment for major bleeding. Surgical hemostasis. Methods of temporary surgical hemostasis. Principles of hemostatic tourniquet application. Mechanical, physical, chemical and biological methods of definitive surgical hemostasis.</p>
<p><b>Theme 7. Blood transfusion. Indications and contraindications to blood transfusion. Blood components and derivatives. Procedure of blood transfusion.</b></p>	
<ul style="list-style-type: none"> <li>To define the definition of transfusiology.</li> <li>To know the antigenic structure of blood.</li> <li>To demonstrate the different type of agglutinations.</li> <li>To apply different methods of blood group determination.</li> <li>To integrate the knowledge</li> </ul>	<p>Definition of transfusiology and blood transfusion. Historical evolution of knowledge about blood groups, Rh factor and blood transfusion. Main blood antigen systems: cellular (erythrocytic, leucocytic, thrombocytic), plasmatic.</p> <p>The role of blood antigen systems in medical practice. Blood group affiliation: blood groups according to system ABO. Blood agglutination. Types of agglutination. Reaction of agglutination and its utility for blood transfusion. Ottenberg’s rule. Methods of determination of blood groups with standard serums and monoclonal antibodies. Possible mistakes during blood groups determination. Rh factor and its role in blood transfusion. The methods of determination of Rh factor.</p> <p>Methods of blood transfusion: direct and indirect transfusion of donor blood, transfusion of autologous blood (autotransfusion, acute preoperative normovolemic haemodilution, reinfusion). Measures to reduce the number of blood transfusions.</p> <p>Blood components: packed red blood cells, platelet concentrate, granulocyte concentrate, and plasma. Composition, methods of preparation and storage, indications and contraindications to the transfusion of blood components.</p> <p>Plasma derivatives: albumin, cryoprecipitate, concentrate of factor VIII,</p>



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<p>from immunology in hem transfusion.</p> <ul style="list-style-type: none"> <li>• To be able to perform the tests for blood compatibility for blood transfusion.</li> <li>• To be able to complete the protocol of blood transfusion.</li> </ul>	<p>thrombin, and immunoglobulin. Indications for administration. Blood substitutes: classification (crystalloid and colloidal solutions), characteristics, advantages and disadvantages, indications for administration. Indications and contraindications for blood transfusion. Procedure of blood transfusion: determination of indications, information of the patient and obtaining the patient's consent, determination of AB0 and Rh blood group of the patient, determination the integrity of container and evaluation the suitability of blood, individual compatibility test, biological test, blood transfusion technique, assessment of patient's condition during and after blood transfusion. Protocol of blood transfusion.</p>
<p><b>Theme 8. Complications of blood transfusion. Semiology, prophylaxis and treatment of hemolytic shock.</b></p>	
<ul style="list-style-type: none"> <li>• To know the complications classification in blood transfusion.</li> <li>• To know the doctor's actions in case of various complications of blood transfusion.</li> </ul>	<p>Classification of posttransfusion reactions and complications. The acute non-immune posttransfusion reactions and complications: acute sepsis and endotoxic shock; hypothermia; pyrogenic reactions; citrate toxicity and hyperpotassemia; air embolism, thromboembolism; transfusion associated circulatory overload (TACO); massive transfusion syndrome. The acute immune posttransfusion reactions and complications: acute hemolytic transfusion reactions and transfusion (hemolytic) shock; non-hemolytic febrile antigenic reactions; allergic and anaphylactic reactions; transfusion-related acute lung injury (TRALI syndrome). Semiology, prophylaxis and treatment. Mild, moderate and severe posttransfusion reactions. Transfusion of contaminated blood and late infectious complications of blood transfusion: prevention and treatment. The main principles of modern blood transfusion.</p>
<p><b>Theme 9. Semiology of nutritional disturbances. Parenteral and enteral nutrition.</b></p>	
<ul style="list-style-type: none"> <li>• To define the definition of nutritional disturbances.</li> <li>• To know the classification of nutritional disturbances.</li> <li>• To demonstrate the clinical assessment of nutritional disturbances.</li> <li>• To apply anthropometrics methods in estimation of</li> </ul>	<p>Semiology of nutritional disturbances. Malnutrition: definition, importance in surgery and causes. Nutritional assessment: history, dietary history, physical findings of organs and systems. Laboratory tests in detecting nutritional abnormalities: complete blood count, liver function tests, delayed-type hypersensitivity, total lymphocyte count. Anthropometrics in estimation of nutritional status of surgical patient: percentage usual body weight, absolute weight loss, body mass index. Classification of nutritional status according to body mass index. Determination of triceps skinfold and mid-humeral circumference, interpretation of results. Energy consumption and caloric requirements in patients with surgical pathology: indirect calorimetric measurements, Harris-Benedict equation, using patient's body weight alone. Increasing of energy consumption in surgical patients. Enteral feeding: advantages, indication and contraindication. Feeding tubes. Enteral feeding products: blenderized tube feeding, standard enteral diets, chemically defined formulas (elemental diets), and modular formulas. Bolus and continuous methods of enteral feeding protocols. Complications of enteral feeding: metabolic, tracheobronchial aspiration, diarrhea. Parenteral nutrition: indications in different pathologies of gastrointestinal tract. Conception of partial and total parenteral nutrition, methods of</p>



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nutritional status. <ul style="list-style-type: none"> <li>• To know the theoretical and practical foundations of enteral and parenteral nutrition.</li> <li>• To know the definition and complications of morbid obesity.</li> </ul>	administration. Main components of solutions for parenteral nutrition. Complications of parenteral nutrition: mechanical, infectious and metabolic. Obesity: definition, classification. Conception of morbid obesity. Complications of morbid obesity: cardiopulmonary effects, diabetes mellitus, joint diseases, cholelithiasis, fat induced liver diseases, thromboembolic disorders, endocrine dysfunction, psychosocial problems. Contemporary treatment of morbid obesity.
<b>Theme 10. Surgical intervention: definition, classification. Preoperative period and postoperative management.</b>	
<ul style="list-style-type: none"> <li>• To define the definition of pre- and postoperative period, intervention.</li> <li>• To know the classification of pre- and postoperative period.</li> <li>• To demonstrate the methods of surgical risk decreasing.</li> <li>• To apply methods of preparing the patient for surgery.</li> <li>• To integrate management of patient in the postoperative period.</li> </ul>	Preoperative period: main purposes and missions. Diagnostic phase of preoperative period and its components: establishment of correct diagnosis, evaluation of main organs and systems status. Assessment of surgical risk. Preparing of patient for surgery: psychological, general and special (preventive preparation of operative field, preparation of gastro-intestinal tract, and evacuation of urinary bladder, premedication). Preoperative conclusion. Surgical intervention: definition. Classification of surgical interventions in connection with urgency of performance, purpose of performance, stage (single-stage operations, multi-stage operations and reoperations), volume (simultaneous operations, combined operations), range of contamination. Peculiarities of laparoscopic and endoscopic operations. Basic steps of surgical intervention: surgical approach, surgical technique, end of operation. Possible intraoperative complications. Definition of iatrogenic injury. Protocol of surgical intervention. Postoperative period: definition, main clinical stages. Physiological phases of postoperative period: catabolic, transitive, anabolic. Postoperative management of surgical patient. Possible complications in postoperative period.
<b>Theme 11. Surgical instruments. Sutures, knots and basic surgical skills.</b>	
<ul style="list-style-type: none"> <li>• Master the general understanding of surgical</li> </ul>	Surgical instruments: general concept, requirements and classification. Instruments for dissection of tissues (scalpels, scissors and wire saw). Instruments for hemostasis (different kinds of forceps). Instruments for grasping of tissues (anatomy and surgical forceps – pincettes). Mobile and



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instruments. <ul style="list-style-type: none"> <li>• To study the classification of surgical instruments.</li> <li>• To demonstrate the ability of using of surgical instruments.</li> <li>• To apply different methods of suturing and knots tying.</li> </ul>	mechanical retractors and dilators. Instruments for tissues suture (surgical needle holders, needles and forceps). Anatomy of surgical needle Hagedorn. Instruments for exploration (probes). Special and laparoscopic instruments. Requirements and types of operating room table and surgical light. Suture materials: brief history and requirements. Classifications of suture materials by structure and source from which they are produced. Concept of atraumatic surgical needles. Labeling of enveloped atraumatic needle with thread. Tying of a simple (direct, square), surgeon's, slip, and instrument applied knots. General rules of the skin wound suturing. Interrupted sutures (simple, Blair-Donati and in "U"), and continuous (simple running and intracutaneous sutures). Principles of skin lesion excision, suturing of fascia, bowel and blood vessel.
<b>Theme 12. Local anesthesia.</b>	
<ul style="list-style-type: none"> <li>• To define the definition of local anesthesia.</li> <li>• To know the classification of local anesthesia.</li> <li>• To demonstrate the technics of local anesthesia.</li> </ul>	Concept of local anesthesia. Local anesthetics: mechanism of action, classification (ethers and amides). Methods of local anesthesia: terminal, infiltration, conduction, epidural and spinal. Indications and contraindications for various types of local anesthesia. Infiltration anesthesia by method of A. Vishnevsky: principles and technique. Epidural and spinal anesthesia: technique, risks and complications. Novocain blockages: definition, indications and technique. Main types of Novocain blockages: vagosympathetic, intercostal, paravertebral, paranephral, pelvic, mesenteric blockage and blockage of round ligament of liver.
<b>Theme 13. Desmurgy: concept, types of bandages. General rules of dressing and bandaging.</b>	
<ul style="list-style-type: none"> <li>• To define the concept of dressing and bandages.</li> <li>• To know the classification of bandages.</li> <li>• To demonstrate rules of applying of bandages.</li> <li>• To apply cravat, roller and triangular bandages on different parts of the body.</li> </ul>	Desmurgy: concept, types of bandages. General rules of dressing technique and bandaging. Triangle bandage: triangle bandage for head; triangle bandage for arm; triangle bandage for chest; triangle bandage for hip joint and gluteal region; triangle bandage for lateral surface of chest; triangle bandage for foot; triangle bandage for hand. Principles and area of application. Cravat bandage: preparation of cravat bandage; cravat bandage for eye; cravat bandage for head; cravat bandage for temple, cheek or ear; cravat bandage for elbow or knee; cravat bandage for arm, forearm, leg or thigh; cravat bandage for axilla. Principles and area of application. Roller bandage: principles of application; four-tailed bandage for chin and nose; roller bandage for elbow; roller bandage for hand and wrist; roller bandage for a finger; roller bandage for thumb and all fingers; roller bandage for ankle and foot; roller bandage for heel; roller bandage for arm and leg; Velpeau's bandage; Desault's bandage; Barton bandage; roller bandage for one eye or both eyes; Hippocrates's bandage; capelin bandage. Principles and area of application. Elastic net retention bandage. Adhesive bandage. Principles and area of application.



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**Theme 14. Wounds: classification, local symptoms. Natural history of wound healing.**

<ul style="list-style-type: none"> <li>• To define the definition of wound.</li> <li>• To know the classification of wounds and clinical characteristics of different wounds.</li> <li>• To demonstrate the clinical criteria for determining the phases of wound healing process.</li> <li>• To know the main complications of wounds and of healing process.</li> </ul>	<p>Wounds: definition, local symptoms: pain, hemorrhage, wound dehiscence and functional disturb. Factors, which determine grade of local symptoms and their characteristic. General clinical manifestations of wound.</p> <p>Classification of wounds: according to origin (surgical, traumatic, and battle wound), according to kind of traumatic agent (cut, stab, chopped, contusioned, lacerated, bite, gunshot, combined wounds), according to course of wound channel (perforating, blind, tangent wounds), according to relation of wound channel with body cavities (penetrating and non-penetrating wounds), according to degree of contamination (aseptic, contaminated, purulent wounds). Local signs according to the kind of wound. Zones of tissue damage and clinical features of gunshot wound.</p> <p>Wound healing process: definition, phases. Pathological and clinical description of phases. Structure and function of granulation tissue. Wound healing first and second intention, with scab formation. Wound complications and complications of wound healing.</p>
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**Theme 15. Wound's treatment. Primary surgical debridement of wound. Types of wounds' closure. Local and general treatment of wounds.**

<ul style="list-style-type: none"> <li>• To know the historical periods of surgical care for patients with wounds.</li> <li>• To be able to perform surgical debridement of the wounds.</li> <li>• To apply the different methods of wounds treatment.</li> </ul>	<p>Historical development of first aid in wound.</p> <p>First aid in wound: removal of early life threatening complications, prevention of wounds' contamination. Principles of treatment of aseptic, contaminated and purulent wounds. Primary surgical processing of wound, its steps. Kinds of primary surgical processing of wound according to the term of performing. Conception of primary, primary deferred, early secondary and late secondary sutures. Secondary surgical processing of wound. Additional physical methods of purulent wounds' cleaning: pulsatile jet, ultrasound cavitation, high-energy surgical laser, treatment in operated abacterial environment.</p> <p>Local drug treatment and general treatment of purulent wounds. Skin grafting.</p>
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**Theme 16. Minor invasive surgical manipulations: injections, central venous access, thoracic, abdominal, gastrointestinal and urological procedures.**

<ul style="list-style-type: none"> <li>• To demonstrate the technique of different parenteral</li> </ul>	<p>Technique of subcutaneous, intramuscular and intravenous injections.</p> <p>Central venous access. Types of central venous catheters. General indications and contraindications of central venous catheterization. The basic methods of insertion of venous catheters. Seldinger technique of vascular access. The major routes of central venous access (internal jugular vein, subclavian vein,</p>
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<p>injections.</p> <ul style="list-style-type: none"> <li>• To define the central venous access.</li> <li>• To know the methods and techniques for performing various small invasive surgical procedures.</li> <li>• To be able to perform thoracocentesis in case of pneumothorax and hydrothorax.</li> <li>• To demonstrate the insertion of intrapleural and gastric tubes, catheters in urinary bladder.</li> </ul>	<p>femoral vein, external jugular vein catheterization): general technical aspects, advantages and disadvantages of each way. Early and late complications of central venous catheterization. Notion about venesection. Getting on pulmonary artery catheterization (Swan-Ganz catheter).</p> <p>Thoracocentesis: definition, indications and contraindications. Technical aspects and landmarks in selecting the site of pleural puncture in pneumothorax and hydrothorax. Complications. Thoracostomy: definition, indications and contraindications. Types of thoracostomy: needle (punctured) trocar catheter and tube thoracostomy. General technical aspects. Complications. Paracentesis. Definition, indications and contraindications. General technical aspects. Complications.</p> <p>Gastric intubation. Types of nasogastric tube. Indications (diagnostically and therapeutically) and contraindications to nasogastric tube installation. General technical aspects of installation of nasogastric tubes. Complications. Definition of duodenal intubation.</p> <p>Balloon tamponade of upper digestive tract in case of variceal bleeding (Sengstaken-Blakemore, Minnesota and Linton-Nachlas tube). The principle of action of balloon tubes for haemostatic tamponade. Indications and contraindications. General technical aspects of installation and extraction of tubes for balloon tamponade. Complications.</p> <p>Anoscopy. Definition, indications and contraindications. Pre-exams preparing. General technical aspects of anoscopy. Sigmoidoscopy. Definition, indications and contraindications. Pre-exams preparing. General technical aspects of sigmoidoscopy.</p> <p>Urethral catheterization. Definition. Types of urethral catheters. Indications and contraindications for urethral catheterization. General technical aspects of urethral catheterization in male and female patients. Immediate complications. The consequences of prolonged urethral catheterization. Percutaneous suprapubic cystostomy. Indications and contraindications. General technical aspects of cystostomy.</p>

**Theme 17. Surgical infection: etiopathogenesis, pathophysiology, local and general symptoms.**

<ul style="list-style-type: none"> <li>• To define the concept of surgical infection.</li> <li>• To know the classification of surgical infection.</li> <li>• To demonstrate the semiology of surgical infection.</li> <li>• To apply the surgical and conservative</li> </ul>	<p>Concept of surgical infection. Classification of surgical infection: according to etiology, clinical manifestation, localization. Pathogenesis of surgical infection: pathogenic germs and source of infection, specific and nonspecific protective reactions of human organism. Factors, which decrease effectiveness of protective mechanisms.</p> <p>Semiology of surgical infection: local and general symptoms. Supplementary method of diagnosis: diagnostic puncture, determination of microorganisms in tissue and their quantity, blood test, the level of molecules with medium apparent molecular weight. Local complications of purulent diseases: necrosis, lymphangitis, lymphadenitis, thrombophlebitis.</p> <p>Principles of local treatment in case of purulent surgical infection of soft tissue: surgical processing, adequate drainage, application of antiseptics, immobilization. Principles of general treatment of surgical infection.</p>
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methods of treatment for surgical infection.	
<b>Theme 18. Semiology of acute purulent processes of soft tissue: furuncle, carbuncle, hydrosadenitis, abscess, phlegmon, mastitis, paraproctitis, erysipelas, pilonidal abscess, bedsores, fistulas.</b>	
<ul style="list-style-type: none"> <li>• To know the definitions and semiology of acute purulent processes of soft tissue.</li> <li>• To demonstrate the techniques of medical care in patients with bedsores.</li> </ul>	<p>Semiology of common purulent diseases of skin and subcutaneous adipose tissue. Furuncle, carbuncle, abscess, phlegmon: definition, etiopathogenesis, symptoms and treatment. Cavernous sinus thrombosis. Erysipelas: definition, clinical forms, symptoms, conservative and surgical treatment. Erysipeloid. Hydradenitis, lymphangitis, lymphadenitis, adenophlegmona: definition, symptoms and treatment. Acute lactogenic mastitis: classification, symptomatology, prophylaxis and treatment. Paraproctitis: definition, classification, symptoms and treatment. Pilonidal sinus and abscess: etiopathogenesis, symptomatology, methods of surgical treatment. In growing toenail: definition, symptoms and treatment. Pressure ulcer (bedsores): etiology, classification, conservative and surgical treatment, prevention. Fistulas: definition, classification, semiology, principles of diagnosis and treatment.</p>
<b>Theme 19. Semiology of felon and hand's phlegmon. Principles of conservative and surgical treatment.</b>	
<ul style="list-style-type: none"> <li>• To define the definition and classification of felon and hands phlegmon.</li> <li>• To apply methods of anesthesia in case of felon and hands phlegmon.</li> <li>• To demonstrate the principles of treatment of patient with felon and phlegmon of hand.</li> <li>• To integrate the knowledge of hands anatomy in classification of hand phlegmon.</li> </ul>	<p>Semiology of purulent affection of fingers and hand. Dependence of symptomatology of purulent diseases on anatomo-functional features of fingers and hand. Felon: definition, classification. Semiology of cutaneous felon, subcutaneous felon, paronychia, purulent tenosynovitis, osseous felon, articular felon and pandactylitis. Signs of Kanavel in the case of purulent tenosynovitis. Differential diagnosis of panaritium. General principles of conservative treatment of felon. Indications for surgical treatment of felon, the rule of "first sleepless night". Principles of surgical treatment of felon: anesthesia, typical incisions.</p> <p>Hand phlegmon: definition, etiology, classification. Symptomatology of particular forms of hand phlegmon: superficial dorsal, interdigital (commissural), midpalmar space, thenar and hypothenar areas. Principles of treatment of hand phlegmon: anesthesia, typical incisions. General principles of conservative treatment of hand phlegmon.</p>





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<b>Theme 20. Anaerobic soft tissue infection. Semiology of gas gangrene. Semiology of anaerobe non-clostridium infection. Tetanus. General principles of treatment and prophylaxis.</b>	
<ul style="list-style-type: none"><li>• To know the term of anaerobic clostridial and non-clostridial infection (gas gangrene).</li><li>• To demonstrate the methods of prevention and treatment in patients with tetanus.</li></ul>	<p>Anaerobic clostridial infection of soft tissues (gas gangrene): characteristics of microorganisms, conditions for infection development, classification according to origin and clinical features. Pathophysiology, clinical signs, diagnosis, and treatment of anaerobic clostridial infection of soft tissues (gas gangrene). Particularities of surgical care for anaerobic clostridial infection of soft tissue.</p> <p>Anaerobic non-clostridial surgical infection: causative organisms, clinical manifestations, diagnosis, and treatment.</p> <p>Surgical aspects of tetanus: causative microorganism and source of infection. Pathophysiology and classification of tetanus. Clinical features of neonatal, cephalic, local, and generalized tetanus. Role of surgical treatment, principles of medical care and prevention of tetanus.</p>
<b>Theme 21. Surgical sepsis: terminology, classification. Clinical criteria of SIRS. Clinical manifestations, diagnosis and treatment of sepsis.</b>	
<ul style="list-style-type: none"><li>• To know the concept and classification of sepsis and SIRS.</li><li>• To demonstrate the disturbances of homeostasis in case of sepsis and SIRS.</li><li>• To integrate the knowledge from physiopathology for explanation of sepsis.</li><li>• To apply methods for making the diagnosis of sepsis and SIRS.</li></ul>	<p>Definition of sepsis, bacteremia, septicemia, septicopiemia. Systemic inflammatory response syndrome (SIRS). Incidence and mortality in sepsis. Pathophysiology of surgical sepsis. Cytokines and their role in pathogenesis of sepsis. Classification of sepsis according to the type of bacteriological agent, localization of primary infectious focus, clinical evolution, and pathological findings. Clinical manifestations of sepsis, main criteria of multiple organ failure. Diagnosis of sepsis: detection of primary focus, blood culture, laboratory data. Local and general treatment of surgical sepsis. Principles of antimicrobial therapy of sepsis.</p>
<b>Theme 22. General surgical semiology. Diagnostic process. Semiology of breast diseases: complains, history and physical examination.</b>	
<ul style="list-style-type: none"><li>• To know the steps of diagnostic process.</li></ul>	<p>Surgical semiology: definition, main object and aims. Concept of symptom and syndrome. Assessment of complaints and anamnesis of surgical patient. Peculiarities of examination of surgical patient. <i>Status localis</i>. Diagnostic process and its basic phases. Role of imaging studies and laboratory tests in</p>



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<ul style="list-style-type: none"> <li>• To apply the clinical methods of examinations.</li> <li>• To integrate the knowledge from previous disciplines in physical examination of surgical patient.</li> <li>• To demonstrate the <i>status localis</i> in surgical diseases.</li> <li>• To define the concept and study the classification of surgical diseases of the breast.</li> <li>• To demonstrate the physical examination of patients with surgical diseases of breast.</li> </ul>	<p>diagnosis of surgical diseases.</p> <p>General semiology of breast: complaints, history, physical examination.</p> <p>Semiology of congenital breast anomalies: polytelia, atelia, amastia, polymastia, aberrant breast. Methods of inspection and palpation of mammary gland: consecution, position of patient, symptoms, palpation by Velpeau’s method. Semiology of breast cancer. Palpation characteristics of breast tumors. Method of palpation of regional lymph nodes. Mastitis: definition, classification, symptoms, prophylaxis and treatment. Semiology of benign breast diseases: mastopathy, gynecomastia. Definition of breast self-examination. Male breast cancer. Instrumental methods of diagnosis for breast diseases.</p>

**Theme 23. Acute abdomen. Groups of diseases. General semiology of acute abdomen: complains, history and physical examination.**

<ul style="list-style-type: none"> <li>• To define the definition of acute abdomen.</li> <li>• To know the classification of illnesses that compose acute abdomen.</li> <li>• To demonstrate the physical examination of patients with acute abdomen.</li> <li>• To apply additional</li> </ul>	<p>Conception of acute abdomen. Groups of diseases with clinical manifestation of acute abdomen. General semiology of acute abdomen. Patient complains and history in case of acute abdomen: patient’s age, time and acuteness of onset, situation of the pain at first, shifting of pain, character and radiation of pain, increasing of pain by movement and respiration, frequency and character of vomit, constipation and diarrhea. Conception and causes of visceral and somatic pain. Inspection of patient with acute abdomen: attitude in bed, skin color, symmetric and asymmetric distension of abdomen, movement on respiration and other. Method of abdominal palpation in case of acute abdomen. Main symptoms during palpation in acute abdomen: tenderness, “board-like” abdomen, pain, skin hyperesthesia, peritoneal irritation (Blumberg’s sign). Determination of psoas symptom (Cope’s sign). Technique of bimanual palpation of the loins. Percussion in case of acute abdomen: disappearance of liver dullness and determination of free fluid in abdominal cavity. Points of auscultation of intestinal sounds and aortic bruits. Technique of rectal examination in patients with acute abdomen, main</p>
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diagnostic methods in patients with acute abdomen.	pathological findings. Instrumental diagnosis in case of acute abdomen.
<b>Theme 24. Semiology of acute abdomen, caused by abdominal inflammatory processes, perforation of hollow organs, intraabdominal bleeding, and intestinal obstruction.</b>	
<ul style="list-style-type: none"> <li>• To be able to perform clinical examination of patients with inflammatory, perforative, occlusive and hemorrhagic acute abdomen.</li> <li>• To know the semiology of inflammatory, perforative, occlusive and hemorrhagic acute abdomen.</li> </ul>	<p>Semiology of acute inflammatory peritoneal diseases: complaints, history, physical examination. Semiology of hollow viscus perforation into abdominal cavity: complaints, history, physical examination. Semiology of intraperitoneal hemorrhage: complaints, history, physical examination. Semiology of acute intestinal obstruction: complaints, history, physical examination. Semiology of strangulating abdominal hernia: complaints, history, physical examination.</p>
<b>Theme 25. Trauma. Injuries of the head, chest, abdomen and skeletal system.</b>	
<ul style="list-style-type: none"> <li>• To define the concept of trauma.</li> <li>• To know the classification of trauma.</li> <li>• To demonstrate the clinical examination of patients with trauma.</li> <li>• To apply methods of first aid to patients with trauma.</li> <li>• To know the features of clinical examination of patients with injuries of the head, chest, abdomen and</li> </ul>	<p>Definition of trauma. Conception of “golden hour” in medical care of patient with traumatic injuries. Penetrating and blunt trauma. Classification of trauma: according to character of the damage agent and conditions of trauma. Definition of isolated, multiple associated and combined trauma. Traumatic disease: periods and particularities.</p> <p>General semiology of head injuries. Primary and secondary brain injury in head trauma. Clinical examination of patients with head injury. Glasgow Coma Scale in evaluation of severity of neurologic coma. Semiology of special types of head trauma: skull fractures, concussion, diffuse axonal injury, cerebral contusion, cerebral compression (epidural, subdural and intracerebral hematoma). Methods of instrumental diagnosis in head trauma. Clinical examination of patients with chest injuries. Semiology of chest injury: rib and sternal fractures. Definition of flail chest. Semiology of pleural space injuries: simple pneumothorax, tension pneumothorax, open pneumothorax, hemothorax. Definition of caked or clotted hemothorax. Semiology of pulmonary parenchymal injuries: pulmonary contusion, pulmonary laceration, pulmonary hematoma, traumatic pulmonary pneumatocele. Semiology of mediastinal injuries: tracheobronchial injuries, cardiac tamponade, traumatic aortic rupture, traumatic diaphragmatic hernia, esophageal injury. Classic Beck’s triad in case of cardiac tamponade. Instrumental methods of diagnosis of chest injuries.</p> <p>Abdominal trauma: classification, main clinical syndromes. Semiology of abdominal wall injury: contusion, hematoma, muscles rupture. Semiology of abdominal trauma with hemorrhagic syndrome (rupture of solid organs). Semiology of abdominal trauma with peritoneal syndrome (rupture of hollow</p>



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skeletal system. • To be able to apply immobilizing splint in case of bone fractures of the limbs.	viscus). Instrumental methods of diagnosis and laboratory tests in case of abdominal trauma. Fracture: definition, classification. Semiology of limb fractures. Absolute and relative symptoms of fracture. X-ray signs of fracture. First aid in case of fracture. Methods of splinting. General principles of treatment. Dislocation: definition, classification. Semiology of dislocation. X-ray signs of dislocation. First aid and general principles of treatment of dislocation.
<b>Theme 26. Semiology of arterial diseases of the extremities: acute and chronic arterial insufficiency, aneurysm of the peripheral arteries. Dry and damp gangrene.</b>	
• To define the concept of acute and chronic insufficiency of peripheral arterial vessels. • To know the classification of surgical diseases of peripheral arterial vessels. • To demonstrate the clinical examination of patients with surgical diseases of peripheral arterial vessels. • To apply additional methods of diagnosis in patients with surgical diseases of peripheral arterial vessels.	Basic syndromes of peripheral vascular diseases: acute arterial insufficiency, chronic arterial insufficiency, aneurysms of peripheral arteries, chronic venous insufficiency, acute superficial and deep veins thrombosis, lymphedema. Common semiology of peripheral vascular diseases. Patient complaints and history of disease in case of arterial pathology of extremities. Intermittent claudication. Examination of patients with diseases of peripheral arteries: determination of arterial pulse, assessment of sensory changes and restrictions of mobility in extremity, symptom of plantar ischemia (Oppel), points suitable for auscultation of arteries. Adson's test. Clinical estimation of the level of arterial occlusion and degree of extremity ischemia. Semiology of acute arterial insufficiency (acute ischemia) of extremities. Semiology of chronic arterial insufficiency (chronic ischemia) of extremities. Semiology of aneurysms of peripheral arteries. Definition of gangrene. Semiology of dry and damp gangrene of extremity. Principles of local and general treatment of dry and damp gangrene. Necrosis: conception, classification according to genesis and clinical manifestations. Environmental conditions and pathological conditions, which can contribute to development of necrosis.
<b>Theme 27. Semiology of venous diseases of the extremities: chronic venous insufficiency, venous thrombosis, elephantiasis.</b>	
• To define the concept of acute and chronic insufficiency of venous peripheral vessels.	Patient complaints and history of disease in case of venous pathology of extremities. Technique of examination of patients with chronic venous insufficiency: functional tests (Delbet-Perthes, Trendelenburg), determination of incompetent perforator veins by palpation. Semiology of chronic venous insufficiency (varicose veins, postthrombotic syndrome). Local signs of venous ulcer. Technique of examination of patients with acute venous thrombosis. Homans' sign. Semiology of acute deep vein thrombosis.



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<ul style="list-style-type: none"> <li>• To know the classification of surgical diseases of peripheral venous vessels.</li> <li>• To demonstrate the clinical examination of patients with surgical diseases of peripheral venous vessels.</li> <li>• To apply additional diagnostic methods to patients with surgical diseases of peripheral venous vessels.</li> </ul>	<p>Conception of “<i>phlegmasia cerulea dolens</i>”. Semiology of acute superficial vein thrombosis. Semiology of lymphedema. Stemmer’s sign. Determination of coefficient of asymmetry by Albertone’s formula. Vascular imaging.</p>

**Theme 28. Diabetic foot: surgical aspects.**

<ul style="list-style-type: none"> <li>• To define the concept of diabetic foot.</li> <li>• To know the classification of diabetic foot.</li> <li>• To demonstrate the local disorder in case of diabetic foot.</li> <li>• To apply methods clinical examination of patients with diabetic foot.</li> <li>• To demonstrate the principles of treatment and prevention of diabetic foot.</li> </ul>	<p>Definition of diabetic foot syndrome. Epidemiology of surgical complications of diabetes mellitus. Pathophysiology of diabetic foot: arterial disease, somatic and autonomic neuropathy. Neuropathic, ischemic and neuroischemic forms of diabetic foot. Biomechanical aspects of foot ulcer formation. Principles of clinical examination of a patient with diabetic foot: inspection of the foot for ulcers, gangrene and deformation, assessment of plantar sensory function (Semmes – Weinstein test, “tip-term” test), determination of pulse at the plantar arteries. Diagnostic methods for diabetic foot syndrome: ankle-brachial Doppler index, photoplethysmography for toe systolic pressure, transcutan oxymetry, duplex ultrasound, angiography, CT, MRI.</p> <p>Peculiarities of diabetic foot infection: role of immune dysfunction, pathogenic microorganisms, clinical signs. Clinical and morphological features of necrosis in diabetic foot. Conception of trophic ulcer. Causes, semiology of ischemic, venous and neuropathic ulcers. Principles of treatment of trophic ulcers. Diagnostic methods for foot infections: probing, needle aspiration, medical imaging (radiography, CT, MRI), laboratory tests. Classification of diabetic foot infection according to the deepness and severity of septic process. Classifications of diabetic foot syndrome: Wagner, from University of Texas, S (AD)SAD.</p> <p>Principles of treatment: correction of ischemia, control of infection, amputations, plastic and reconstructive surgery. Prophylactic measures for diabetic foot.</p>
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<b>Theme 29. Basic transplantology.</b>	
<ul style="list-style-type: none"> <li>• To define the definition of different type of transplantation.</li> <li>• To know the classification of transplantation.</li> <li>• To demonstrate the conception of transplant rejection. To apply methods for prevention of transplant rejection in transplantation.</li> </ul>	<p>Brief history of transplantology. Fundamentals of transplantology: conception, common terminology (donor and recipient, autogenic, syngeneic, allograft, xenograft transplantation, orthotopic and heterotopic transplantation, transplantation on the vascular stalk, free flap transplantation). Replantation.</p> <p>Tissue incompatibility reaction. Histocompatibility antigens. Hyperacute, acute and chronic transplant rejection. Prevention and treatment of transplant rejection. Adverse effects and complications of immunosuppressive therapy. Organs donation: living donors and deceased donors. Signs of brain death. The order and technique of organ extraction for transplantation. Current problems in organ transplantation.</p>
<b>Theme 30. Practical exam.</b>	

**VIII. PROFESSIONAL (SPECIFIC (SC)) AND TRANSVERSAL (TC) COMPETENCES AND STUDY FINALITIES**

**Professional (specific) (SC) competences**

- CP1 Responsible execution of professional tasks with the application of the values and norms of professional ethics, as well as the provisions of the legislation in force
- CP2 Adequate knowledge of the sciences about the structure of the body, physiological functions and behavior of the human body in various physiological and pathological conditions, as well as the relationships between health, physical and social environment
- CP3 Resolving clinical situations by developing a plan for diagnosis, treatment and rehabilitation in various pathological situations and selecting appropriate therapeutic procedures for them, including providing emergency medical care
- CP4 Promoting a healthy lifestyle, applying prevention and self-care measures
- CP5 Interdisciplinary integration of the doctor's activity in a team with efficient use of all resources
- CP6 Carrying out scientific research in the field of health and other branches of science

**Transversal competences (TC)**

- CT1 Autonomy and responsibility in the activity

**Study finalities**

- To assimilate theoretical and practical bases of asepsis and antisepsis in prevention and treatment of surgical infections;



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- To perform clinical examination of a patient with surgical pathology and reflecting the findings into academic history of diseases;
- To use principles in diagnosis of syndromes in general surgery: inflammatory, hemorrhagic, necrotic, ischemic, occlusive and traumatic;
- To make assessment of hemodynamic parameters in bleeding and applying techniques of temporary and definitive artificial hemostasis;
- To distinguish the phase of wounds healing and apply suitable treatment of these;
- To perform minor surgical procedures according to competence of integrated knowledge;
- To assimilate the theoretical basis of desmurgy;
- To integrate acquired knowledge in their further practical application;
- To be competent to use the knowledge and methodology of general surgery and semiology in the ability to explain the nature of physiological or pathological processes in surgery;
- To be able for implementation of the knowledge gained in the research activity;
- To be competent to use critical and reliable scientific information obtained using the new information and communication technologies.

**Note. Discipline finatities**(are deduced from the professional competences and the formative valences of the informational content of the discipline).

### IX. STUDENT'S SELF-TRAINING

No.	Expected product	Implementation strategies	Assessment criteria	Implementation terms
1.	Working with the sources of information:	Careful reading of lecture and (or) material from book, relating to the topic. Reading of the questions, this needs to be clarified. To familiarize with the additional sources of information, regarding to the topic. Generalize the information and to make the conclusions regarding to the topic.	The ability of catching of main information: interpretive ability, capacity of working.	During the both of semester
2.	Working with on-line materials	On-line auto evaluation, to see the didactic materials on-line and from the site of general surgery department; to express herself opinions on the forum and chat.	The number and duration of entering on the site of our department and the result of auto-evaluations.	During the both of semester
3.	Preparing and presentation of information	Choosing of the topic of research, planning, and timing. Determining of components of project or presentation: the name of theme, aim, result, conclusions, practical benefit, and bibliography. The reference from the colleges	The work capacity, grade of penetration in to the project, the level of scientific explanation, the quality of the conclusions, elements of creativity, the making of personal	During the second semester



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		and teachers.	attitude, consistency of exposure and scientific coherence, graphic.	
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### X. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT

#### ✓ *Teaching and learning methods used*

Discipline of General Surgery and Semiology is a subject where methods of teaching and learning consist of lectures in university halls, and practical work in Surgery Clinic. Courses are aimed to elucidate the material in the context of contemporary requirements; they follow to clear up the fundamental problems in various topics of general surgery, which are permanently updating. Additionally, there are lectures in the form of films for distance learning, that allow students to return to not completely understood places from the lecture. E-lectures are posted on the web page of Department of General Surgery and Semiology in the section "Info students". Practical lessons are spent in that way that theoretical material presented in lectures and bibliography updated are demonstrated in concrete practical activities. This is the most obvious way to motivate students to learn. Practical work is spent in discussion and teacher explains the less understood topic for students.

#### ✓ *Applied (specific to the discipline) teaching strategies / technologies*

„Brainstorming”, „Multi-voting”; „conference”; „team interview”; „clinical case”; „the techniques focus-group”.

#### ✓ *Methods of assessment (including the method of final mark calculation)*

**Current:** ongoing verifying, clinical problems, clinical history, current test-control.

**Final:** complex examination including two steps: control test and oral exam. The trimestral mark that values 0.5 from the final mark is composed of 0.3 from trimestral mark and 0.2 from practical skills. This requires assessment of practical skills knowledge not at the end of the semester, but just during the study. Therefore, examination mark summarizes the 0.3 from trimestral mark, 0.2 from the practical skills, 0.2 from test-control, and 0.3 from mark of oral theoretical answer.

In accordance with the "**Regulation on the organization of studies in higher education under the National Study Credit System**" approved by order of the Ministry of Education of the Republic of Moldova No. 726 of 20 September 2010 and Decision of the Central Medical Council of "Nicolae Testemitanu" University from 5 November 2010 for the session of 2011-2012 academic year, the following factors are approved:

#### **Clinical disciplines:**

Trimestral Average – coefficient 0.5;

Oral examination – coefficient 0.3;

Multiple-choice test – coefficient 0.2.

#### **At the clinical disciplines, annual average mark consists of:**

The actual trimestral average – coefficient 0.3;

Practical skills – coefficient 0.2.

Each component is assessed with grades from 10 to 1 with decimals and hundredths. The final mark is the weighted sum of current assessments and final examination and assessed with grades from 10 to 1 decimals rounded to 0.5.

#### **Method of mark rounding at different assessment stages**





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<b>Intermediate marks scale (annual average, marks from the examination stages)</b>	<b>National Assessment System</b>	<b>ECTS Equivalent</b>
1,00-3,00	2	F
3,01-4,99	4	FX
5,00	5	E
5,01-5,50	5,5	
5,51-6,0	6	
6,01-6,50	6,5	D
6,51-7,00	7	
7,01-7,50	7,5	C
7,51-8,00	8	
8,01-8,50	8,5	B
8,51-9,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	

The average annual mark and the marks of all stages of final examination (computer assisted, test, oral) - are expressed in numbers according to the mark scale (according to the table), and the final mark obtained is expressed in number with two decimals, which is transferred to student's record-book.

*Absence on examination without good reason is recorded as "absent" and is equivalent to 0 (zero). The student has the right to have two re-examinations in the failed exam.*

## **XI. RECOMMENDED LITERATURE:**

### *A. Compulsory*

1. Guțu E, Casian D, Iacob V, Culiuc V. General Surgery and Semiology. Lecture support for the 3rd-year students, faculty of Medicine nr.2. 2nd edition. Chișinău: CEP Medicina; 2017. 127 p. 300\*
2. Guțu E, Casian D, Culiuc V, Bzovii F. Set of online lectures (24 video lectures) in English for third year students, Medicine program, within the Department of General Surgery-Semiology no.3 of Nicolae Testemitanu SUMP, 2020. N/A\*
3. Gostishcev V. General surgery. Moscow: Goetar-Media; 2003. 219 p. 494. Guțu E, Iacob V, Casian D, Cristalov G. Dressings and Bandages. Methodical recommendation. Kishinev: CEP Medicina; 2006. 29 p. 35\*

\* - available in electronic format from the web page of Department

### *B. Additional*

1. Sabiston Textbook of Surgery. The Biological Basis of Modern Surgical Practice. 18-th ed. Philadelphia: WB Saunders; 2007. 2100 p. 4\*\*
2. Bates B. A Guide to Physical Examination and History Taking. 5-th ed. Philadelphia: JB Lippincott; 1991. 714 p. 1\*\*
3. Greenfield LJ, ed. Surgery: Scientific Principles and Practice. 2nd ed. Philadelphia: Lippincott-



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Raven; 1997. 2238 p. 1\*\*

\*\* - free internet access