MEDICINE FACULTY

MEDICAL STUDY PROGRAM 0912.1. MEDICIN

Department of topographical anatomy and operative surgery

APPROVED
at the meeting of the Commission for Quality Assurance and Curriculum Evaluation faculty of Medicine
Protocol Nr. 1 from 16.09.21
President _____
Suman Serghei _____

APPROVED
at the meeting of the Faculty of the 2 Medicine Council
Protocol Nr. 1 from 21.09.21
Dean of the Faculty of Medicine 2
Dr. șt. med. conf. univ
Mircea Bețiu _____

APPROVED
at the Department of anatomy and clinical anatomy
Protocol Nr. 2 from 1.09.21
Chief of the department, dr. hab. șt. med., prof. univ.,
_____ Catereniuc Ilia

CURRICULUM

DISCIPLINE **CLINICAL ANATOMY**

Integrated studies

Course type: **obligatory discipline**

Curriculum developed by the group of authors:

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Chișinău, 2021

I. PRELIMINARIES

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

The Clinical Anatomy course is an important component of preclinical and clinical education with the main objective of studying structural spatial laws in different regions and their links, including the approach to the methodology of surgical techniques.

The individual anatomical variability of the human body is determined by the constitutional type, gender and age of the individual. Thus, the position of the organs, vessels, nerves is unique to each individual, and perpetuates individual surgical behavior, distinct from each patient.

In most of the surgergical operations, the organs or parts of them are denuded. Performing an operation, the surgeon must consider the structure and accessibility of the anatomy, minimizing the sectioning of the anatomical formations in the projection of the target organ.

The human body consists of: head, neck, trunk, upper and lower limbs. Each component consists of areas, which in turn are divided into topographical regions.

Clinical anatomy and surgery use the following methods for the study of the living and the cadavers: roentgenoscopy, roentgenography, roentgenostereography, computer tomography, magneto-nuclear resonance, angiography, radionuclide scintigraphy, thermography and endoscopic exploration (thoraco-, laparo-, gastro- -, angio-, cardio-, broncho-, colonoscopy, etc.).

The body surface research in the human being is performed to determine the osteomuscular landmarks, which help assess the direction of surgical incisions and anthropometric measurements. Live morphological exploration of the head and neck includes both bone and soft parts.

In the research of the corpse, the following methods are used: anatomotorographic dissection, through (preparation of the regions on anatomato-topographic borders) through different incisions we study layer of the tissues of the given region, the structural-spatial correlations of the components of the neurovascular bundles, the position of the organs, etc. The method of study by glacial carving, proposed and used by N. I. Pirogov, consists in the stepped cutting of all the tissues surrounding the body under study.

Vascular system research is performed by injecting blood and lymphatic vessels with colored solutions, roentgenocontrast and subsequent preparation of vessels, using roentgenography, computerized tomography, magneto-nuclear resonance. Another method is the corrosion in which, after filling the vessels, the ducts and cavities with polymerizable masses, the adjacent tissues dissolve in acids or bases, remaining the copy of the investigated structures.

At present, the topographical anatomy is widely applied to histological, bio- and histochemical, immunohistochemical methods. For evaluation of submicroscopic structures, electronic microscopy, electronic packing, etc. are used.

This discipline aims to elucidate the regions of the body including through the current international anatomical nomenclature to be studied by students, residents and practitioners.

- **Mission of the curriculum (goal) in professional forming**

Applicative science, synthesis of normal anatomy, which studies the spatial structural relationships of organs and tissues on regions of the human body. Topographical anatomy forms a clear picture in inter-organic relationships, both adjacent and distant, as a result of which it can solve difficult problems of diagnosis and multidisciplinary treatment. Topographic Anatomy and Operator Surgery Two disciplines that form an integrity and meet the requirements of practical medicine.

The study of topographical and surgical anatomy in the residency aims to acquire, systemize the clinical anatomy, to develop skills and to deepen the knowledge necessary for the argumentation of surgical techniques, topical diagnosis, topographic and surgical argumentation of disease progression.

21st Century Medicine is a MEDICINE OF ADVANCED SURGICAL TECHNIQUES.

- **Languages:** English
- **Beneficiaries:** 2nd year students, Medicine 1 and 2 faculty, specialty Medicine

II. ADMINISTRATION OF THE DISCIPLINE

The discipline code		**F.03.O.021**	
Name of the discipline		**Clinical anatomy**	
Responsible (s) for the discipline		**Suman Serghei**, dr. hab. șt. med., prof. univ.	
Year	**II**	Semester/ Semesters	**3**
The total number of hours, include:			**75**
Lectures	**30**	Practical / laboratory work	**25**
Seminars	**20**	Individual work	**45**
Evaluation form	**E**	Number of credits	**4**

III. TRAINING OBJECTIVES IN THE DISCIPLINE

✓ ***At the level of knowledge and understanding:***

- know the peculiarities of topographical organization of the regions of the human body;
- know spatial structural relationships of organs and tissues by region;
- know the communications of cellular spaces;
- to know the changes of the interorganic relationship in different physiological and pathological states;
- define the theoretical bases of clinical anatomy;
- study the stratigraphic anatomy of the human body by region;
- identify sintopia, holotopia, and skeletonopathy between organs, anatomical formations and tissues;
- know the particularities of the structure of each region's plan in adults and in the growing organism;
- to define the theoretical bases of the surgical techniques execution stages;
- have the description of the technique applied within the region;
- to identify the purpose, stages, individual peculiarities and complications of the surgical act according to the affection, age and sex;
- be familiar with the principles and peculiarities of access to organs and regions;

✓ ***At the application level:***

- to apply the knowledge
- demonstration of repere points, limits of topographic regions and projection of basic anatomical formations on the skin (organs, blood vessels, nerves, efferent lymphatic circulation, topography of lymph nodes, etc.);
- establish holotopy and skeleton of organs and anatomical formations by regions;
  o assess the structural features of topographic organs and tissues (skin, fascicular spaces, muscles, vasculo-nerve formations, lymph nodes, etc.);
- to assess the projection and topography of vasculopathy packs (synopia, their basic composition, surgical anatomy and possible sufficient and insufficient anatomical and clinical collateral circulation of blood collar);
- to demonstrate anatomically-clinically the possible ways of spreading (primary and secondary) the purulent processes and the hematomas;
- have the knowledge to apply
- to demonstrate the dissection technique by regions and layers derived from structural spatial relationships;
- to bring arguments on rational surgical access to organs, vessels and nerves;
- identify the technical steps in the surgical procedure (the basic steps, the sequence of maneuvers and their particularities, the wound hemostasis, and the tract, etc.);

✓ ***At the integration level:***

- be able to evaluate the place and role of clinical anatomy in the preclinical and clinical training of the student physician;
- to appreciate the importance of topographical anatomy and surgical surgery in the context of integration with other related medical disciplines;
- To address creatively the problems of practical and fundamental medicine;
- to deduce the interrelations between topographical anatomy and operative surgery with other fundamental disciplines;
- possess skills in applying the knowledge obtained in topographical anatomy and surgical surgery;
- Be competent in the objective evolution and self-evaluation of the knowledge gained in the field;
- be able to assimilate new knowledge and achievements in morphological disciplines.
- to appreciate the ways of spreading the purulent (primary and secondary) per region and rational incisions in case of suppressive diseases;
- to develop scientific research projects in the field with the integration of the knowledge of clinical anatomy;
- determine and appreciate the quality of optimal haemostasis in different regions;
- to appreciate the optimal and critical segments of ligation of the arteries in accordance with collateral blood flow;
- be able to apply extreme surgical techniques in practice.
- be competent to use the knowledge and methodology of clinical anatomy in the ability to explain the nature of physiological or pathological processes;
- be able to implement the knowledge gained in the research activity;

- be competent to use critically and with confidence the scientific information obtained using the new information and communication technologies;
- be able to use multimedia technology to receive, evaluate, store, produce, present and exchange information, and communicate and participate in networks via the Internet;
- be able to learn to learn, which will contribute to the management of the professional route.

IV. PREVIOUS CONDITIONS AND REQUIREMENTS

Topographical anatomy and operative surgery is a fundamental, experimental, applicative and clinical discipline, the study of the subject at the postgraduate level of education enables the future physician, resident physician and practitioner to acquire, renew and perfect their knowledge, skills and practical implementation.

For the correct acquisition of the discipline it is necessary to know thoroughly in the field of anatomy, embryology, basic elements of surgical techniques obtained during university, postgraduate and continuous training of specialists in the field.

Student of the second year requires the following:

- knowledge of the language of instruction;
- confirmed competences in science at Year 1 (descriptive anatomy);
- digital competences (use of the Internet, document processing, electronic tables and presentations, use of graphics programs);
- ability to communicate and team work;
- qualities - tolerance, compassion, autonomy.

V. TOPICS AND ORIENTATIVE DISTRIBUTION OF HOURS

A. Lectures (courses):

Nr. d/o	Topic	HOURS
1.	Operative surgery and topographical anatomy as a didactic subject, its aims and role in the study process. Content and methods of study. Contribution of scholars to the development of discipline. The main role of N.I. Pirogov as the founder of surgical surgery and topographic anatomy. Surgical anatomy of fascio-cellular formations on the extremities. Pirogov's laws on the ratio of vascular-truncated trunks and fascicles. The practical importance. Surgical act - notion, stages, requirements. General Surgical Instruments (classification, destination, use technique). Basic surgical procedures, peculiarities of use in pediatric surgeon practice. Principles and methods of dissociation and suturing of tissues. Haemostasis.	2
2.	Clinical anatomy of upper limb, regions: shoulder, arm, elbow, forearm. Surgical anatomy of fascio-cellular formations, canals, lines of projection of vessels and nerves. Clinical anatomy of the hand, surgical interventions in whitlow and phlegmon. Blood arcade, critical segments. The lesions nn. radial, median, ulnar - manifestations. Congenital malformations of the upper limb. Application value. Osteofibrosis channels, vasculopathy, fascia, and cellular spaces, the practical importance of spreading purulent collections.	2
3.	Clinical anatomy of the inferior limb. Surgical anatomy of fascio-cellular formations, canals, lines of projection of vessels and nerves. Blood circle, critical segments. The injuries of nn. sciatic, common lancet, tibial - manifestations. Fascio-cellular beds, osteofibrosis channels, vasculopathy, fascia, and cellular spaces - the spreading pathways of pus and hematomas on regions. Congenital malformations of the inferior limb.	2
4.	Surgery on vessels and nerves. Ways of circulating blood circulation in ligature vessels. Critical Segments. Ligature of main vessels, vascular suture, vascularity. Get Endovascular Surgery. Access and nerve discovery, neurolysis, neurotomia, suturing, plasticizing and permutation of the nerves. Operations on the veins: venepunction, venescection, flebectomy. Particularities in children. Trunk anesthesia on upper and lower limbs. Tunnel syndrome. Suture of the tendon (tenorphia). Getting microsurgical interventions. Particularities in children.	2
5.	Surgical wounds of limb wounds (processing of soft tissues, tendons, bones, vessels and nerves). Bone surgery (osteosynthesis, osteotomy, osteoclasty, bone resection, osteoplasty, sechestrectomy) and joints (joint puncture, arthrotomy, resection, arthroplasty, arthrodesis, arthrorysis, arthrolysis). Particularities in children. Access routes to bones and joints. Amps and disarticulations - general principles, phases and moments, types, processes. Principles of prosthesis. Age characteristics.	2
6.	Surgical anatomy of the head of the brain. Surgical anatomy of topographic regions in successive planes: frontoparietooccipital, temporal, mastoid, and skull base Particularities of vascularization of epicranian tissues, cellular spaces and spread of pus. Tinnitus of the brain. Venous sinuses. The ventricular system of the brain and the cerebrospinal fluid. Venous system of the cerebral region of the	2

	head Operating principles in the surgical toilet of the craniocerebral wounds, hemostasis. You're scalding. Cerebral ventricular puncture. Antrotomy. Trepanation (osteoplastic and decompressive) and cranioplasty. Intracranial hematoma. Congenital malformations and general principles of treatment.	
7.	The surgical anatomy of the facial head portion. Topographic regions in successive plans. Vascularization of the facial region of the head, anatomical and clinical features. The venous system and its communication with the intracranial one. The vasculopathy formations. Fascias and cellulosic tissues in the facial region. Nerve Topography: Facial and Trigeminal. Surgical anatomy of the parotid gland. Pathways of spreading. Age characteristics. Block trigeminal nerve branches. Pathways and incisions in purulent parotidity. Opening and draining of the purulent facial region of the head. Operational principles and technical peculiarities in the surgical toilet of maxillofacial wounds, hemostasis. Puncture of the maxillary sinus. General principles of treatment in congenital malformations.	2
8.	Surgical neck anatomy. Topographical regions. Superficial Elements. Fascils and cellular spaces, their applicative value, the ways of spreading the pus. Topography of the medial and lateral throat triangle. Sternocleidomastoid region. Deep spaces of the cervical region (antescalen and interscale spaces, scalenovertebral triangle). Topography of the glands: thyroid, parathyroid, larynx, trachea, pharynx, esophagus. Surgical anatomy of the thoracic duct, n. Frenic, n. Accessory, n. Recurrent larynx, sympathetic trunk. Dengue and ligation on the tract of the arteries on the throat. Blood circle, critical segments. Topographic argumentation of incisions in the superficial and deep throat phlegm. Loco-regional barriers. Operations on the neck organs (strumectomy, esophagorphy and stomia, suture of esophagus and trachea). Surgery on the upper respiratory tract (cricokonicotomy, tracheostomy, microtraheocentesis). Puncture and cateterization vv. external and internal jugular, subclavicular. The discovery and drainage of the thoracic duct on the neck.Congenital malformation. Particularities in children.	2
9.	Clinical anatomy of the chest. Stratigraphy. The dishes and nerves. Surgical anatomy of the mammary gland. Topography of the pleura, lungs, diaphragm, mediastinum organs: anterior and posterior. Reflexogenic areas. Congenital malformations of the mediastinal organs, the aorta and the thoracic wall. Operator access pathways on chest cavity organs. Operating principles in emergency surgery on the chest wall - penetrating and non-penetrating wounds (pneumothorax, thoracotomy, coastal resection and heart suture in wounds). Pleural puncture in pneumo- and hydrotrophy, puncture of pericardium. Intubation of the trachea. Incisions in the mastitis and chest phlegmon of the newborn. Congenital malformations, operating principles. Particularity in children.	2
10.	Topographical Anatomy of the Anterolateral Abdominal Wall. Surgical anatomy of external abdominal hernias. Methods and methods of hernia plasticity, particularities in children. Congenital abdominal wall abnormalities (gastroschisis, umbilical hernias). Vitelin duct, canal and umbilical ring, umbilical layers (congenital umbilical fistula). Surgical anatomy of fascio-cellular formations. Classification of hernias, operative principles in herniotomy. Basic steps and operative procedures in the white, umbilical, inguinal, and femoral hernias. Operational features in congenital hernia, strangled and slipped. Operatory particularities in children.	2
11.	Topographical Anatomy of peritoneal cavity organs (supramezocolic floor). Topography of scholarships (omental, hepatic and pregastric). General principles in laparatomy. Argumentation of rational incisions and operative access pathways on peritoneal cavity organs. Laparocenteza. Talk about operations on the peritoneal cavity organs. Surgery on the stomach (vagotomy, perforated ulcer surgery, gastric resection - Bilrot I and II, gastrostomy, pilorotomy, gastroenteroanastomoses), parenchymal organs (parenchymal organ suture, liver resection, splenectomy), biliary bile (cholecystectomy). Congenital malformations: pylorostenosis, biliary tract atresia	2
12.	Surgical anatomy of inframezocolic organs. Topography of the small and thick intestine, check and appendix. Side channels, mesenteric sinuses and peritoneal recesses. Envelopes, ligaments, scholarships, places of predilection in the accumulation of pathological fluids in the peritoneal cavity. Revision of the peritoneal cavity and small intestine. The intestinal suture. Insect suturing technique (separate and continuous suture, Albert suture and Smyen suture, Lambert serum to serum). Surgery on the small intestine (enterotomy, enteroraphy, suture of intestinal wounds, resection, lateral, endo-lateral enteroanastamoses) and large intestine (colostoma and artificial anus after Maidle, appendectectomy). Particularities in children. Surgical anatomy of inborn vices: Meckel diverticulosis, megacolon, Hirchprung disease (congenital megacolon), pylorostenosis, intestinal atresia.	2
13.	Topographical Anatomy of the spinal, lumbar and retroperitoneal regions. Topography in layers, weak places (Petit and Lesgaft-Grynfelt triangles). The vertebral canal and its contents. Particularities of vascularization and innervation of the spine. The osteoligmentary system of the lumbar spine. Surgical anatomy of fascio-cellular formations. The ways of spreading the pus. The anatomo-topographic arguments of the access ways and the principles of the operators on the organs of the retroperitoneal	2

	space (extraperitoneal and transperitoneal). Kidney surgery (nephrectomy, resection and kidney suture, pyelotomy), ureters (resection and suture of the ureter) and spine (laminectomy). Lumbar puncture, rahianesthesia and epidural block (technique). Particularities in children.	
14.	Topographical Anatomy of pelvic and perineal organs. Divide the small basin cavity into "floors". Fascils and cell spaces, diffusion of purulentness. Topography and age peculiarities of the rectum, ureter, bladder, prostate, and uterus with appendages (relationship to peritoneum, synopia, vessels and nerves, lymphatic circulation). Topography of the perineum. Locoregional blockages (n. Pudend, intrapeline block and spermatic funnel). Getting surgical interventions and access ways to pelvic organs (prostate, bladder, rectum, uterus, testicular and inflammation of the ischiorectal fossa). Congenital malformations of the pelvic organs, manifestation, methods of treatment. Particularities in children.	2
15.	Transplantation of organs. tissues and cells, Transplantology in the Republic of Moldova (legislation, system organization), Immunity and tissue tolerance, ways to combat incompatibility. Methods of tissue / cell preservation, departmental input in this field. Local practice	2
	Total	**30**

B. Seminars / Practical works:

Nr. d/r	Topic	Hours	
		S	LP
1.	**Contents, purpose and methods of studying of clinical anatomy.** Principles and methods. General surgical instruments – classification, destination, utilization technique. Basic surgical procedures: principles, phases of a surgical act. Methods and principles of incisions and sutures of tissues. Hemostasis. Surgical knots.	1	1
2.	**The shoulder (pectoral) girdle region**. Infraclavicular, deltoid, scapular, axillary regions and shoulder joint. Surgical anatomy of vessels and nerves. Spaces, ways of spreading of pus, evolution of phlegmons and hematomas (incisions performed to drain collections). Collateral blood circulation. Projection lines, surgical approach, revealing and ligation of main arteries on extremities. Level of ligation of axillary artery (optimal and critical segments). Methods of hemostasis. Argumentation of surgical approaches to shoulder joint, vessels (subclavicular artery, axillary artery) and nerves. Puncture of shoulder joint.	1	1
3.	**The brachial, elbow and forearm regions**. Boundaries, layers, fasciae and fascial sheaths, vessels and nerves. Ways of spreading of pus and hematomas. Incisions performed in case of purulent infections, technique and argumentation from anatomical point of view. Positions of the bone segments in case of fractures on different levels of the humerus. Projection lines and surgical approaches to neurovascular bundles of arm, forearm and cubital region. Collateral blood circulation and argumentation of optimal ligation level of main arteries. Critical arterial segments. Methods of hemostasis. Venesection, venipuncture. Vascular sutures.	1	2
4.	**The hand region.** Carpus, metacarpus and fingers. Boundaries, layers, fasciae, sheaths and spaces, fibrous canals and synovial bursas. Ways of spreading of pus. Surgical access to vessels and nerves (critical arterial segments). Projection lines, finding and ligation of vessels of the hand. Incisions made on hand in case of phlegmons and panaritium. Prohibited surgical areas on the hand. Exarticulation and amputation of phalanges. Sutures techniques of tendons and nerves.	1	1
5.	**The anterior-medial region of the thigh.** Subinguinal space, femoral canal, obturator canal, femoral triangle (Scarpa), Hunter canal. Surgical anatomy of femoral hernias. Topographic anatomy of gluteal region, posterior region of the thigh and hip joint. Positions of the bone segments in fractures on different levels of the femur. Ways of spreading of the phlegmons and hematomas. Vessels and nerves, projection lines. Collateral blood circulation and possible complications in case of ligation of femoral artery. Surgical approaches to femoral canal, femoral artery and vein. Herniotomy and hernioplasty of femoral hernias (Bassini, Rudgi, Parlavechio procedures). Amputation of the thigh: principles, types and surgical phases. Saphenectomy.	2	2

6.	**The leg and knee region.** Popliteal and Jobert fossae. Fascial sheaths, canals, neurovascular bundles and spaces. Collateral blood circulation in case of lessions of arteries and possible complication in case of ligation of arteries. Ways of spreading of pus and hematomas and argumetnation of surgical approaces to drain the collections. Positions of the bone segments in fractures on different levels of the leg bones. Projection lines, surgical approaches, revealing and ligation of main arteries. Amputation and disarticulation: principles, types, surgical phases. Operations on vessels and nerves. (saphenectomy, nerve blockage). Operations on bones and articulations. **The talocrural (ankle) and foot regions.** Osteo-fibrous canals, neurovascular bundles, collateral blood circulation, articulations and ligaments. Topographic anatomy of medial maleolar region, dorsal and plantar regions of the foot – boundaries, layers. Ways of spreading of the pus. Projection lines and surgical approaches to vessels, nerves and bones. Venesection and venipuncture. Amputation and disarticulation: principles, types (Lisfranc, Chopart). Surgical procedures on bones and articulations. **MID-TERM TEST NR.1 OF LECTURES 1-7 .**	2	2
7.	**The cerebral part of the head.** Cranial vault. The boundaries and layers of the fronto-parieto-occipital and temporal and mastoid regions. Particularities of vascularization of the epicranial tissues. Surgical anatomy of the mastoid region. The meninges of the brain, intermeningeal spaces. Surgical treatment of the craniocerebral wounds. Methods of hemostasis. Trepanation of the skull (osteoplastic and decompresive). Cranioplasty. Mastoid antrotomy. Ventriculopuncture and puncture of the superior sagital sinus. Surgical interventions in case of purulent infections of soft tissues of the head.	1	1
8.	**The facial part of the head.** The buccal (cheek), parotido-masseteric regions and deep region of the face. Layers. Fascial spaces. Vessels, nerves. Venous connections. Topography of facial and trigeminal nerves. Surgical anatomy of parotid gland. Orbital, nasal and oral regions. Rational incisions in case of purulent infections of the face. The blockage of trigeminal nerve branches. Ways of spreading of pus. Maxilar sinus puncture.	1	1
9.	**The neck region.** Division into triangles. Fascial layers. Interfascial spaces. Ways of spreading of pus. Suprahyoid region. Topographic anatomy of the medial triangle of the neck. The topography of thyroid and parathyroid glands, larynx, pharynx, neck portion of the trachea and esophagus. Surgical treatment of the wounds of the neck. Surgical acces to organs of the neck, blood vessels and nerves. Puncture of the external and internal jugular veins. Tracheostomy and conicotomy.: indications, complications. Tracheostomy and conicotomy in children. Carotid triangle. Sternocleidomastoid region. Lateral triangle of the neck (antescalene and interscalene spaces). Scalenovertebral triangle. Ways of spreading of pus and hematomas. Surgical interventions on the neck. Argumentation of rational incisions made on the neck in case of superficial and deep phlegmons. Cervical plexus block. Puncture of the subclavian vein. Surgical access, revealing and drainage of the thoracic duct on the neck.	2	2
10.	**The thorax**. Layers and spaces of the chest wall. Vessels, nerves. Clinical anatomy of the mammary gland. Surgical anatomy of internal thoracic artery. Sugical anatomy of the anterior and posterior mediastinum (heart, pericard, thoracic aorta, esophagus, azygos and hemiazygos veins, splanchnic nerves, vagus nerves, phrenic nerves, recurent nerves, trachea, bronchi, thoracic duct, sympathetic trunk). Reflexogenous zones. Topographic anatomy of the diaphragm, pleura, lungs, lung roots. Ways of spreading of pus. Basic surgical operations on organs of the thoracic cavity. Rational surgical accesses. Incisions made in case of mastitis. Intercostals block. Thoracocentesis and pericardiocentesis. Surgical treatment of penetrating and non-penetrating thoracic wounds. Thoracotomy and subperiostal resection of the ribs. Puncture of subclavian vein. Principles of surgical treatment of open and tension pneumothorax. Particularities in children. Notions of surgical interventions on the heart. **MID-TERM TEST NR.2 OF LECTURES 8-12 .**	2	2
11.	**The antero-lateral abdominal wall**. Weak points. Layers. Vascularization and innervation. Venous porto-caval and cavocaval anastomosis. The surgical anatomy of the the inguinal region. Inguinal canal and inguinal space. Surgical anatomy of the external abdominal hernias of the abdominal wall, structure, types, classification. Surgical principles in hernias, peculiarities in children. The basic steps and surgical procedures in white line hernia, umbilical hernia and inguinal hernia. Surgical peculiarities in congenital inguinal hernia, strangulated inguinal hernia and sliding inguinal hernia. Umbilical hernia repair , inguinal canal plasty. Surgical procedures in children. Ways of spreading of pus. Rational incisions and surgical access to the organs of abdominal cavity. Laparocentesis (celiocentesis).	1	2
12.	**Topographic anatomy of the abdominal and peritoneal cavities**. The surgical anatomy of supramesocolic organs: skeletotopy, holotopy, syntopy. Relationship of the organs with peritoneum, folds, ligaments, bursa (omental, hepatic and pregastric). Lesser and greater omentum. Topographic anatomy of the vagus nerves. Vascularization and innervation of the organs of	2	2

	peritoneal cavity. Venous portocaval and cavocaval anastomosis. Typical seats of accumulation of the pathologic fluids in the peritoneal cavity. Principles of surgerical intervention on gastrointestinal tract. Intestinal anastomosis and suture. Surgical operations on the stomach: stomach wound suturing, gastrotomy, gastrostomy, gastroenteroanastomosis, surgical interventions in case of pylorostenosis. Stomach resection. Surgical interventions in case of perforated ulcer, on the liver, gallbladder, spleen and pancreas.		
13.	**The surgical anatomy of organs situated in the inframesocolic floor** (jejunum, ileum and colon). Relationship of the organs with peritoneum: skeletotopy, holotopy, syntopy. Paracolic sulci, mesenteric sinuses and recesses. Typical seats of accumulation of the pathologic fluids in the peritoneal cavity. The topography of the small and large intestine (cecum and appendix). Critical areas of vascularization. Surgical anatomy of congenital malformations: Meckel diverticulum, megacolon, Hirschsprung's disease (congenital megacolon), atresia. Revision of the peritoneal cavity. Intestinal suture. Intestinal sutures techniques. Surgical interventions on small intestine (enterostomy, intestinal wounds suturing, intestinal resection, types of anastomoses). Surgical interventions on large intestine (colostomy and artificial anus, appendectomy).	1	2
14.	**The lumbar region (postero-lateral wall of the abdomen), spinal column and retroperitoneal space.** Layers, weak points (Petit and Lesgaft Grynfelt triangles). Topography of the retroperitoneal organs, fascias, adipose layers and neurovascular structures. Ways of pus spreading from retroperitoneal space. The topography of the spinal column and spinal canal (content, osteoligamentar structures). Basic principles of surgery on retroperitoneal organs. Lumbar spinal canal puncture technique. Spinal anesthesia. Surgical operations on spinal column (laminectomy, spondylodesis). Surgical access on kidneys, ureters and retroperitoneal tissues (retroperitoneal and transperitoneal). Nephrectomy, kidney resection and kidney suture. Pyelotomy. Ureteral resection and suture.	1	2
15.	**The pelvis and perineum.** Bones, ligaments , muscles, pelvic organs, relationship with the peritoneum, vascularization, innervation, lymphatic and venous drainage. Age particularizations. Division of pelvis into "floors". Pudendal canal. The relationship of pelvic organs with peritoneum in women and men (folds, recesses, ligaments). Fasciae and retroperitoneal spaces, ways of pus and hematomas spreading. Surgical access and surgical interventions on pelvic organs. Pudendal nerve block (Alcock). Rectouterine pouch (Douglas pouch) puncture. Surgical interventions in hydrocele (Bergmann, Winkelman). Catheterization, puncture of the urinary bladder, suprapubic cystostomy. Surgical procedures for hemorrhoids, paraproctitis and anal fistulas. Argumentation of the incisions made in case of abcesses and phlegmon. Surgical operations in anomalies: atresia of the rectum and anus, epispadias, hypospadias.**MID-TERM TEST NR.3 OF LECTURES 13-17 .**	1	2
	Total	**20**	**25**

VI. REFERENCE OBJECTIVES AND CONTENT UNITS

Objectives	Content units
Chapter 1. "Clinical anatomy of upper and lower limbs"	
• Define the boundaries of the regions • Define the projection lines of the vasculo-nerve packets • Have the appreciation of the limits by using landmarks • To argue the importance of cellular fascicles and spaces and their role in the propagation of purulent processes • Know the collateral circulation and argue for differences between the optimal and the critical ones • Know and possess notions of surgical techniques on limbs • Apply knowledge to other disciplines • To make conclusions	Region - territorial unit on the surface of the body with its stratigraphic peculiarities and spatial relations between anatomical formations. Point of reference - palpable unit within the boundaries of a region to which the position of a fixed or mobile body is related; sign or object that facilitates orientation or allows recognition of a region. Projection - Representation of an anatomical formation in space, an area, etc. on a straight line, on a plane. Operation - Operative surgical action performed on a diseased organ or tissue
Chapter 2. "Clinical anatomy of the head and neck"	
• Define the boundaries of the regions • Define the projection lines of the vasculo-nerve packets • Have the appreciation of the limits by using landmarks • To argue the import of cellular fascicles and spaces and	Region - territorial unit on the surface of the body with its stratigraphic peculiarities and spatial relations between anatomical formations. Point of reference - palpable unit within the boundaries of a region to which the position of a fixed or mobile body is related; sign or object that

Objectives	Content units
their role in the propagation of purulent processes • Know the collateral circulation and argue for differences between the optimal and the critical ones • Know and possess notions of surgical techniques on the head and neck regions • Apply knowledge to other disciplines • To make conclusions	facilitates orientation or allows recognition of a region. Projection - Representation of an anatomical formation in space, an area, etc. on a straight line, on a plane. Operation – Operative surgical action performed on a diseased organ or tissue Tracheostomy - opening the trachea to allow direct breathing through the trachea.

Objectives	Content units
Chapter 3. "Clinical anatomy of the abdominal wall and abdominal cavity"	
• Define the boundaries of the regions • Define the projection lines of the organs • Have the appreciation of the limits by using landmarks • To argue for the import of fascia and cellular spaces and their role in the propagation of purulent processes on the abdominal wall • To know topographical differences between constitutional types • Know and possess notions of surgical techniques on abdominal wall regions and abdominal cavity organs • Define the definition of hernias • Apply knowledge to other disciplines • To make conclusions	Region - territorial unit on the surface of the body with its stratigraphic peculiarities and spatial relations between anatomical formations. Point of reference - palpable unit within the boundaries of a region to which the position of a fixed or mobile body is related; sign or object that facilitates orientation or allows recognition of a region. Projection - Representation of an anatomical formation in space, an area, etc. on a straight line, on a plane. Scheletotopy - projection of the organ to the skeleton Holototopy - projection on the region Sintopy - the relationship with neighboring structures. Operation - Operative surgical action performed on a diseased organ or tissue
Capitolul 4. „Anatomia clinică aregiunilor lombare, spațiului retroperitoneal și pelvisului”	
• Define the boundaries of the regions • Define the projection lines of the organs • Have the appreciation of the limits by using landmarks • To argue for the import of fascia and cellular spaces and their role in the spread of purulent processes in the retroperitoneal and pelvic space • To know topographical differences between constitutional types • Know and possess notions of surgical techniques on abdominal wall regions and abdominal cavity organs • Define the definition of hernias • Apply knowledge to other disciplines • To make conclusions	Region - territorial unit on the surface of the body with its stratigraphic peculiarities and spatial relations between anatomical formations. Point of reference - palpable unit within the boundaries of a region to which the position of a fixed or mobile body is related; sign or object that facilitates orientation or allows recognition of a region. Projection - Representation of an anatomical formation in space, an area, etc. on a straight line, on a plane. Scheletotopy - projection of the organ to the skeleton Holototopy - projection on the region Sintopy - the relationship with neighboring structures. Operation - Operative surgical action performed on a diseased organ or tissue

VII. THE PROFESSIONAL COMPETENCES (SPECIFIC (CS) AND TRANSVERSAL (CT) AND DISCIPLINE FINALS:

✓ **THE PROFESSIONAL COMPETENCES**

- Knowledge, understanding and use of language specific to clinical anatomy;
- Knowledge and understanding of the stratigraphic organization of different regions, explanation of the principles of their specialization and interaction;
- Explaining and interpreting the spread of fleeting processes between regions.
- Knowing the principles of basic surgical techniques and understanding the interpretation of their performance.
- Modeling of installation situations for collateral movements.
- Solving situation problems and formulating conclusions.
- Comparison of different regions in the stratigraphic plan.

- Analysis of different discirculating situations leading to pathological conditions.

✓ **TRANSVERSAL COMPETENCES:**

- Improving decision-making autonomy;
- Forming your personal attitude
- Ability to social interaction, group work with different roles
- Fitting in interdisciplinary projects, extracurricular activities,
- Improvement of dissection skills
- Improving digital skills
- Developing different learning techniques to learn
- Selection of digital materials, critical analysis and conclusions.
- Presentation of individual scientific projects.

✓ **DISCIPLINE FINALS**

• To know the peculiarities of the stratigraphic organization of the regions;
• To know the particularities of the organization of the regions and their interrelations with the neighboring ones;
• To know the bases and the practical role of topographical anatomy and surgical surgery between surgical disciplines.
• be able to evaluate the place and role of clinical anatomy in the preclinical and clinical training of the student physician;
• be competent to use the knowledge and methodology of clinical anatomy in the ability to explain the nature of physiological or pathological processes;
• be able to deduce the possible causes of failure in interpretation of local-regional topography, including in relation to surgical techniques;
• be able to implement the knowledge gained in the research activity;
• be competent to use critically and with confidence the scientific information obtained using the new information and communication technologies

VIII. THE STUDENT'S INDIVIDUAL WORK

Nr.	The expected product	Implementation Strategies	Evaluation criterias	Deadline
	Working with information sources:	Read the lecture or the material in the manual to the theme carefully. Read questions on the subject, which require a reflection on the subject. To get acquainted with the list of additional information sources on the topic. Select the source of additional information for that theme. Reading the text entirely, carefully and writing the essential content. Wording of generalizations and conclusions regarding the importance of the theme / subject.	Ability to extract the essentials; interpretative skills; the volume of work	During the semester
	Working with the practical lessons book:	Transcribing the various tasks in the practical lesson with solving them by associating the drawings to the explicit text. Analyze the information from the pictures of the lecture topic and the manual. Solving consecutive tasks. Formulate conclusions at the end of each lesson. Verify the final lessons of the lesson and appreciate their achievement. Selection of additional information, using electronic addresses and additional bibliography.	Workload, problem solving, ability to formulate conclusions	During the semester
	Apply	Association of theoretical training with the	Volume of work, degree of insight	During the

Nr.	The expected product	Implementation Strategies	Evaluation criterias	Deadline
	different learning techniques:	development of dissection skills, learning of surgical nodes, participation in the work of the department for medical and surgical skills	into different subjects, level of scientific argumentation, quality of conclusions, elements of creativity, demonstration of understanding the problem, formation of personal attitude	semester
	Working with online materials:	Self-assessment by viewing on-line resources, studying on-line materials on the SITE department, expressing your own opinions through forum and chat	Number and duration of SITE entries, self-evaluation results	During the semester
	Preparing and supporting presentations / portfolios:	Selection of the research theme, establishment of the research plan, setting the terms of realization. Establishing PowerPoint project / theme components - theme, purpose, results, conclusions, practical applications, bibliography. Colleagues reviews. Teacher reviews	The volume of work, the degree of penetration in the essence of the project theme, the level of scientific argumentation, the quality of the conclusions, the elements of creativity, the formation of the personal attitude, the coherence of the exposure and the scientific correctness, the presentation,	During the semester

IX. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-EVALUATION

- ***Teaching methods used***

The topographical anatomy and operative surgery is taught in a classical manner: lectures and practical works. The lectures are read by course teachers. In practical work, medical students study / prepare fixed bodies, drawings of successive sections through the human body at different levels, watching films (including surgical techniques), animal surgery (rabbits). It is useful to implement and insist on the development of projects distributed according to the thematic plan. In each semester, Basik Surgical Skils (two editions per semester) is run at the department, where each participant can complete the basic surgical techniques associated with theoretical presentations.

In the teaching of the topographical anatomy and operative surgery various teaching methods and methods are used, oriented towards the efficient acquisition and achievement of the objectives of the didactic process. In the theoretical lessons, along with traditional methods (lesson-exposure, lesson-conversation, synthesis lesson), modern methods (lesson-debate, lecture-conference, problem-lesson) are also used. Practical forms of individual, frontal, group, virtual lab work are used in the practical works. For the deeper learning of the material, different semiotic systems (scientific language, graphical and computerized language) and teaching materials are used. Within the lessons and extracurricular activities are used Communication Information Technologies - PowerPoint presentations, on-line lessons..

- ***Recommended learning methods***
  - **Observation** - Identification of characteristic elements of biological structures or phenomena, description of these elements or phenomena.
  - **Analysis** - Imaginary decomposition of the whole into components. Highlighting the essential elements. Studying each element as part of the whole.
  - **Schema / figure analysis** - Selection of required information. Recognition based on knowledge and information selected structures indicated in the drawing, drawing. Analysis of the functions / role of recognized structures.
  - **Comparison** - Analysis of the first object / process in a group and the determination of its essential features. Analysis of the second object / process and the determination of its essential features. Comparing objects / processes and highlighting common features. Comparing objects / processes and determining differences. Establishment criteria for decommissioning. Formulation of conclusions.
  - **Classification** - Identification of the structures / processes to be classified. Determining the criteria on which classification is to be made. Distribution of structures / processes by groups according to established criteria.
  - **Schematic drawing** - Selection of elements to be included in the schematic. Playing the Elements Selected by Different Symbols / Colors and Indicating Their Relationships. Wording of an appropriate title and legend of the symbols used.
  - **Modeling** - Identify and select the elements needed to model the phenomenon. The imaging (graphical, schematic) of the phenomenon studied. Realizing the phenomenon using the developed model. Formulation of conclusions, deduced from arguments or findings.

- **Experiment** - Formulation of a hypothesis, based on known facts, on the process / phenomena studied. Verifying the hypothesis by performing the processes / phenomena studied under laboratory conditions. Formulation of conclusions, deduced from arguments or findings.

- ***Applied didactic strategies / technologies (discipline specific)***

„Brainstorming", „Multi-voting"; „Round table"; „Group interview"; „Clinical case"; „Creative Controversy"; "Focus group technique", "Portfolio".

Virtual Practices

- ***Methods of assessment (including an indication of how the final grade is calculated)***

Current: front and / or individual control through

- (a) applying docimological tests,
- (b) solving problems / exercises,
- (c) analysis of case studies
- (d) performing role plays on the topics discussed.
- (e) control work

✓ **Final:** exam

The final mark *will consist of the average score from three control works [illegible] (share 0.5), the final test sample in computerized system (share 0.5).*

The average annual mark and the marks of all the final exam stages [illegible] expressed in numbers according to the scoring scale (according to the table), and the final mark obtained will be expressed in two decimal places to be passed in the note book.

Scoring scale

THE INTERMEDIATE NOTES GRID (annual average, grades from the exam stages)	National scoring scale	Equivalent ECTS
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	

Failure to attend the examination without good reason is recorded as "absent" and is equivalent to 0 (zero). The student is entitled to 2 repeated claims of the unsuccessful exam.

8. [illegible]

I. Obligatory:

1. Course material
2. The didactic materials elaborated by the department
3. [illegible]
4. [illegible] Human Anatomy [illegible]
5. Agur, Anne M.R.; Dalley, Arthur F. [illegible] Atlas of Anatomy [illegible] Lippincott Williams & Wilkins
6. [illegible]
7. Library of the department
8. [illegible]
9. [illegible]
10. [illegible]