
		UNIVERSITY OF EAST SARAJEVO Faculty of Medicine				
		Study program: Medicine in English				
		Integrated academic studies		V study year		
Full course title		SURGERY				
Department		Department of surgery, Faculty of Medicine i Foča				
Course code		Course status		Semester	ECTS	
ME-02-1-047-9, ME-02-1-047-10		compulsory		IX, X	27	
Teacher-s	Prof. Dr. Nenad Lalovic, Prof. Dr. Slavko Manojlović, Prof. Dr. Dejan Ivanov, Prof. Dr. Radojica Jokić, Prof. Dr. Zoran Radovanović, Prof. Dr. Miloš Joković, Prof. Dr. Miloš Bjelović, Prof. Dr. Aleksandar Redžek, Prof. Dr. Siniša Kojić, Prof. Dr. Sanja Marić, Prof. Dr. Radmil Marić, Prof. Dr. Vjeran Saratlić, Prof. Dr. Maksim Kovačević, Prof. Dr. Milorad Bijelović, Assoc. Prof. Dr. Helena Marić Kujundžić; Assoc. Prof. Rade Miletić, PhD, Aleksandar Argirović, PhD					
Associate- s	Senior Assistant Dr. Senka Milić, Senior Assistant Dalibor Potpara, PhD, Đorđe Veljović, PhD, Vanja Starović, PhD, Zoran Šarenac, PhD					
The number of teaching hours/ teaching workload (per week)			Individual student workload (in hours per semester)			Coefficient of student workload S₀¹
П	В	СП	П	В	СП	S ₀
5	7	2.66	5*15*0.9	7*15*0.9	2.66*15*0.9	0.9
5	6	2.66	5*15*0.9	6*15*0.9	2.66*15*0.9	09
Total teaching workload (in hours, per semester) 5*15 + 7*15 + 2.66*15 = 220 5*15 + 6*15 + 2.66*15 = 205			Total student workload (in hours, per semester) 5*15*0.9+ 7*15*0.9+ 2.66*15*0.9= 199 5*15*0.9+ 6*15*0.9+ 2.66*15*0.9= 186			
Total subject workload (teaching + student): 425 + 385 = 810; hours						
Learning outcomes	<p>1. Students are expected to master basic communication skills with patients, patients' relatives and colleagues, as well as teamwork principles and the basics of ethics.</p> <p>2. Students are expected to master particularities of taking anamnesis and physical examination of a surgical patient</p> <p>3. While attending lectures, students acquire all the necessary knowledge of pathogenesis, clinical presentation and treatment of diseases and conditions of adult population, related to all surgical specialities.</p> <p>4. Particular attention is paid to the importance of preventive medical procedures.</p> <p>5. While attending practical work, students develop practical skills in all surgical specialities, patients' examination, diagnostic and differential diagnostic procedures, interpretation of X ray images, get acquainted with interpretation of medical findings, endoscopic procedures, acute management of an injured patient and other acute surgical conditions.</p>					
General competences	<p>They have broad theoretical knowledge and practical skills, enabling them for any type of postgraduate education and collaboration with other healthcare professionals.</p> <p>They have acquired a systematic way of thinking and a structured approach to medical problems throughout their education.</p> <p>They possess knowledge of specific diagnostic algorithms and are capable of making appropriate therapeutic decisions.</p> <p>They are ready to dedicate themselves to the medical profession and accept responsibility for the physical, mental, and social well-being of patients.</p> <p>They respect patients' rights to fully participate in treatment decisions, including the right to refuse treatment or participate in teaching, research, or scientific experiments.</p> <p>They are able to express themselves and communicate in a manner that is understandable and acceptable to the patient.</p> <p>They are ready to accept responsibility and make appropriate medical decisions.</p> <p>They are familiar with health promotion and disease prevention and are willing to promote such attitudes in the medical profession.</p> <p>They have formed attitudes and awareness of personal limitations in accordance with previous education and experience.</p>					

¹ Коэффициент студентског оптерећења S_o се рачуна на следећи начин:

а) за студијске програме који не иду на лиценцање: $S_o =$ (укупно оптерећење у семестру за све предмете 900 h – укупно наставно оптерећење П+В у семестру за све предмете ____ h) / укупно наставно оптерећење П+В у семестру за све предмете ____ h = ____ . Погледати садржај обрасца и објашњење.

б) за студијске програме који иду на лиценцање потребно је користити садржај обрасца и објашњење.

		They are aware of the need for lifelong learning and continuous improvement to maintain a high level of medical competence.
Preconditions		Precondition for taking the exam: all of the fourth year exams passed
Teaching methods		Lectures, practical exercises, problem-based learning sessions, work on phantoms, case presentation, seminar papers, using simulation software, consultations
Course content per week	1.	<p>INTRODUCTION The Importance of Surgery in Medicine. The Place of Surgery in Medicine. The Role of Surgery in Medicine. Basic History of Surgery. Development and Advancement of Surgery. Current Achievements in Surgery. Trends in Further Development in Surgery. The Future of Surgery.</p> <p>SURGICAL PROPHYLAXIS METHODS The significance and essence of asepsis and antisepsis methods. Manual sterilization methods. Standard sterilization methods. Rapid sterilization methods. Modern technological sterilization methods. Behavior in the operating room.</p> <p>SURGICAL INFECTIONS Division, recognition, prevention, and therapy. Surgical infection and sepsis. Anaerobic infections. Gas gangrene. Phlegmon, synergistic gangrene. Antibiotics in surgery.</p>
	2.	<p>INJURIES Division, classification of wound types: forms and evolution. Wound management. Polytrauma. Procedures in polytrauma. Crush and blast syndrome. Priority procedures in polytrauma. General concepts of injuries by regions: skin, face, head and neck, chest, abdomen and retroperitoneum, extremities. Specifics of treating injuries in conditions of mass accidents and emergencies.</p> <p>BLEEDING AND HEMOSTASIS: Division, clinical picture. Organism's response to bleeding. Systemic causes of bleeding. Diagnosis and treatment of bleeding. Hemostasis methods: temporary and permanent. Hemostasis methods: provisional and standard. Comparative effectiveness of individual methods with special emphasis on the role of constrictive dressings. Professor Dr. Zlatko Maksimović, 3 hours</p> <p>SURGICAL WOUNDS Surgical wound.</p> <p>TISSUE TRANSPLANTATION Surgical aspects of tissue transplantation. Organ transplantation.</p>
	3.	<p>BASIC PRINCIPLES OF SURGICAL DIAGNOSIS The importance of clinical examination and data synthesis. Physical examination. Laboratory methods. Interpretation of laboratory findings. Endoscopic methods in surgery. Ultrasound. Radiodiagnostics. Indication setting for surgery.</p> <p>PREOPERATIVE PREPARATION AND POSTOPERATIVE CARE Preoperative assessment. Preoperative preparation. ASA score. Methods for predicting surgery outcomes. Intraoperative treatment. Postoperative course. Postoperative therapy. Postoperative complications.</p>
	4.	<p>ANESTHESIA AND ANALGESIA Concepts, history of anesthesia. Types of general anesthesia. General inhalational, intravenous anesthesia. Intraoperative monitoring. Local and regional anesthesia. Pain, definition. Pain management in general.</p> <p>WATER AND ELECTROLYTE BALANCE Disorders of body water metabolism. Disorders of electrolyte metabolism. Acid-base balance: definition and concept. Body's buffering system. Respiratory and metabolic causes of acid-base disturbances. Clinical picture and manifestation of acid-base disorders, diagnosis, and therapy.</p> <p>CARDIOPULMONARY RESUSCITATION general concepts. definition. cardiopulmonary resuscitation. cardiopulmonary and cerebral resuscitation, basic level and ii degree resuscitation. metabolic disorders in trauma. metabolic disorders in sepsis. metabolic disorders in starvation. TPN and EN.</p>

5.	<p>SHOCK AND TRANSFUSION History and significance of the concept. Pathophysiology, classification, clinical presentation. Basic guidelines in therapy. Shock and sepsis. Components and derivatives of blood. Indications and contraindications for transfusion. Physician's procedure during transfusion. Prof. Dr. Milivoje Đostić 2 hours ESOPHAGEAL AND DIAPHRAGM SURGERY:</p> <ul style="list-style-type: none"> • Esophagus: functional disorders: spasms, achalasia. • Esophageal diverticula. • Hiatal hernia and gastroesophageal reflux disease. • Esophagitis and esophageal strictures. • Barrett's esophagus. • Esophageal injuries: clinical presentation, diagnosis, therapeutic approach. • Benign esophageal tumors. • Esophageal carcinoma: significance, prevalence, clinical presentation, treatment options. • Esophageal varices: diagnosis, clinical presentation, treatment methods. • Diaphragm: congenital and traumatic diaphragmatic hernias. • Diaphragmatic injury.
6.	<p>CARDIAC AND GREAT VESSEL SURGERY, PULMONARY EMBOLISM:</p> <ul style="list-style-type: none"> • Congenital and acquired heart diseases. • Cardiac injuries and cardiac tamponade: recognition, basic diagnostics, therapeutic approach. • Coronary artery diseases and their surgical treatment, recognition and treatment directions. • Endocarditis. • Pulmonary embolism: clinical presentation, recognition, and therapeutic approach. <p>CARDIAC AND GREAT VESSEL SURGERY, PULMONARY EMBOLISM:</p> <ul style="list-style-type: none"> • Introduction to extracorporeal circulation methods, heart transplantation, and the use of artificial hearts. • Aortic stenosis and insufficiency. • Thoracic aortic aneurysm. • Aneurysm dissection: clinical presentation, recognition, therapeutic approach. • Injuries to large chest blood vessels. Recognition and therapeutic approach. <p>PERICARDIUM, CARDIAC TUMORS, CARDIAC DEFECTS. BASICS OF ELECTRICAL STIMULATION:</p> <ul style="list-style-type: none"> • Obstructive cardiac defects. • Cardiac defects with right-left shunting. • Cardiac defects with left-right shunting. • Complex heart malformations. • Cardiac tumors. • Pericarditis: types, clinical presentation. • Exudative and constrictive pericarditis: recognition and treatment directions. • Cardiac arrest: fibrillation, asystole, heart block, Adams-Stokes syndrome: recognition and therapeutic approach. • Basics of cardiac electrical stimulation method - pacemakers.

7.	<p><u>PERIPHERAL VASCULAR SURGERY. SURGICAL CORRECTABLE HYPERTENSION.</u></p> <ul style="list-style-type: none"> • Arterial diseases, etiology, and diagnostic methods. • Vasospastic disorders. • Buerger's disease. • Atherosclerotic occlusion of lower extremity arteries. • Acute and chronic arterial occlusions. • Arterial embolism and thrombosis. <ul style="list-style-type: none"> • Surgical diseases of carotid and vertebral arteries. • Aneurysms and A-V fistulas of peripheral arteries. • Medical and surgical treatment of arterial diseases. • Renovascular hypertension: diagnostics and therapeutic possibilities.
8.	<p><u>PERIPHERAL VASCULAR SURGERY. SURGICAL CORRECTABLE HYPERTENSION.</u></p> <ul style="list-style-type: none"> • Thrombophlebitis and phlebothrombosis. • Thoracic outlet syndrome. • Post-thrombotic venous syndrome. • Varicose veins. • Venous ulcers. • Lymphedema. • Injuries to peripheral blood vessels: first aid and treatment procedures. • Vascular injuries. • Specifics of vascular injuries and management in conditions of mass accidents and emergencies. <p><u>ENDOCRINE SURGERY: THYROID AND PARATHYROID GLANDS</u></p> <ul style="list-style-type: none"> • Thyroid: anatomy and developmental anomalies. • Diagnosis of diseases. • Goiter and solitary nodules. • Hyperthyroidism, hypothyroidism, thyroiditis. • Benign and malignant tumors of the thyroid gland. • Hypothyroidism. • Basics of conservative and operative treatment of thyroid tumors. • Parathyroid glands: hyperparathyroidism, hypoparathyroidism, parathyroid tumors.
9.	<p><u>ABDOMINAL WALL</u></p> <ul style="list-style-type: none"> • Abdominal wall hernias: definition, classification, and diagnosis. • Inguinal hernias. • Femoral hernias. • Incarcerated hernias. • Medial and lateral abdominal wall hernias. • Complications of hernias. • Rare hernias. • Manual reduction of hernias - taxis. • Congenital defects, inflammations, and tumors of the abdominal wall. <p><u>ACUTE ABDOMEN</u></p> <ul style="list-style-type: none"> • Diagnosis, definition. • Abdominal pain. • Surgical causes of abdominal pain. • Etiology of acute abdomen. • Syndromes of acute abdomen: peritonitis, ileus, intra-abdominal bleeding. • Peritonitis: definition and classification: diffuse peritonitis, intra-abdominal abscesses. • Specific forms of acute peritonitis. • Intra-abdominal bleeding: causes, clinical presentation, diagnosis. • External bleeding from the digestive tract. • Causes, differential diagnosis, diagnostic and therapeutic approach.

10.	<p>MANIFESTATIONS OF DIGESTIVE DISORDERS, STOMACH AND DUODENUM</p> <ul style="list-style-type: none"> • Abdominal pain, vomiting, bleeding, jaundice. • Injuries to the abdominal wall and abdominal organs. • Specificity of abdominal and abdominal organ injuries in conditions of mass accidents and emergencies. • Stomach: diagnosis of stomach diseases. • Gastritis. Duodenal ulcer disease. • Gastric ulcer. • Surgical complications of peptic ulcer disease. • Gastric sarcoma. • Cardiac carcinoma. • Gastric carcinoma. • Gastric lymphomas. • Benign tumors and foreign bodies of the stomach. • Stomach injuries.
11.	<p>SMALL INTESTINE, APPENDIX, ILEUS Prof. Dr. Zoran Radovanović, 2 hours</p> <ul style="list-style-type: none"> • Injuries and diverticula of the small intestine. • Crohn's disease. Enteritis. Tuberculosis of the small intestine. • Diseases of mesenteric blood vessels: mesenteric thrombosis. • Fistulas of the small intestine. • Tumors of the small intestine and mesentery. • Injuries to the small intestine. • Appendix. Acute appendicitis: clinical features, characteristics. Complications of acute appendicitis, treatment. • Specific forms of appendicitis. Chronic appendicitis. Tumors of the appendix. • Ileus. Types and features of ileus. Pathophysiology of ileus. Types of small bowel obstruction: diagnosis, clinical presentation. • Obstruction of the large intestine. • Treatment of intestinal obstruction. • Dynamic ileus: causes, diagnosis, and treatment.
12.	<p>COLORECTAL SURGERY: Prof. Dr. Zoran Radovanović, 3 hours</p> <ul style="list-style-type: none"> • Diagnosis of colorectal diseases. • Intestinal sepsis and mechanical preparation of the colon for diagnostic procedures and surgeries. • Injuries to the colon and rectum. • Ulcerative colitis. • Crohn's disease of the colon. • Radiation-induced pseudomembranous and ischemic colitis. • Toxic megacolon. • Sigmoid volvulus. • Colonic diverticulosis. • Colonic polyps. • Colon and rectal carcinoma. • Malignant colon obstructions. • Other tumors of the colon and rectum. <p>RECTUM AND ANUS</p> <ul style="list-style-type: none"> • Hemorrhoids. • Anorectal abscess. • Anal fistulas and suppurative hidradenitis. • Rectal prolapse. • Rectocele, fecal incontinence. • Anal tumors. • Injuries to the colon and rectum.

13.	<p>HEPATIC SURGERY Prof. Dr. Nenad Lalović, 3 hours</p> <ul style="list-style-type: none"> • Basic diagnosis of hepatobiliary diseases. • Jaundice syndrome. • Liver injuries. • Liver abscesses. • Liver cysts. • Echinococcosis of the liver. • Portal hypertension. • Benign and malignant liver tumors. <p>GALLBLADDER AND BILIARY TRACT</p> <ul style="list-style-type: none"> • Anomalies of the gallbladder. • Acute and chronic cholecystitis. • Cholelithiasis, cholangitis, and intrahepatic lithiasis. • Biliary ileus. • Oddi sphincter stenosis. Sclerosing cholangitis. • Injuries to the biliary tract. • Tumors of the gallbladder and biliary tract.
14.	<p><u>PANCREAS AND SPLEEN</u></p> <ul style="list-style-type: none"> • Acute pancreatitis: forms and manifestations. Therapeutic approach and the role of surgical intervention. • Chronic pancreatitis. • Pancreatic tumors: benign and endocrine. • Pancreatic carcinomas. • Pancreatic injuries. • Splenic injuries. Diseases of the spleen. • Portal hypertension and hematologic diseases as indications for splenectomy. <p><u>ENDOCRINE SURGERY</u></p> <ul style="list-style-type: none"> • Endocrine pancreas: clinical presentation and diagnostic methods. • Beta-cell tumors. Zollinger-Ellison syndrome. • Adrenal glands: diagnostic methods in adrenal cortex diseases. • Surgical diseases of the adrenal glands: Cushing's disease, pheochromocytoma, adenoma. • Acute and chronic adrenal insufficiency. • Adrenal medulla: diagnosis, tumors, types of tumors, surgical treatment. • Conn's syndrome.
15.	<p><u>RETROPERITONEUM</u></p> <ul style="list-style-type: none"> • Inflammation, injuries, fibrosis, and tumors. <p><u>ONCOLOGICAL SURGERY</u></p> <ul style="list-style-type: none"> • General principles. Tumor biology. • Staging of malignant diseases. Routes of spread. • General surgical principles in treatment. • Soft tissue sarcomas. • Benign breast diseases. • Breast carcinoma – clinical presentation, diagnosis, and treatment.

	16.	<p><u>PLASTIC AND RECONSTRUCTIVE SURGERY</u></p> <ul style="list-style-type: none"> • History of plastic surgery. • Hand injuries. Principles of hand injury management. • Burns: local treatment, general treatment, surgical treatment. • Tangential excisions, autologous, homologous, and heterotransplantation of skin. • Hand infections. • Basic principles of plastic surgery in the treatment of congenital anomalies, traumatic, surgical, and other defects. • Skin grafts, skin-muscle flaps, and other flaps. • Craniofacial aesthetic surgery: elements, most common diseases and injuries, and the role of plastic surgery. <p><u>ONCOLOGICAL SURGERY</u></p> <ul style="list-style-type: none"> • Skin tumors, melanoma.
	17.	<p><u>THORACIC SURGERY</u></p> <ul style="list-style-type: none"> • Introduction to thoracic surgery. • Basic principles of non-invasive and invasive diagnostics, preoperative assessment, and surgical treatment. • Foreign body in the tracheobronchial tree. • Congenital, traumatic hernias, and diaphragmatic injuries. • Pulmonary hydatid cyst.
	18.	<p><u>THORACIC SURGERY</u></p> <p>Pleuritis, empyema.</p> <ul style="list-style-type: none"> • Lung abscess. Malignant and benign lung tumors. • Mediastinal tumors.
	19.	<p><u>CHEST SURGERY</u></p> <ul style="list-style-type: none"> • Pneumothorax. Thoracic drain procedure. • Chest injuries (wall, lungs). <p><u>NEUROSURGERY</u> <u>HEAD AND BRAIN INJURIES</u></p> <ul style="list-style-type: none"> • Concussion and brain contusion. Subdural hematoma. Epidural hematoma. Open injuries. Skull fractures. • Diffuse axonal injury, clinical presentation, diagnosis, and treatment principles. • Base of skull fractures. • Intracerebral hematoma. Complications of cranio-cerebral injuries. • Head and brain injuries in mass casualty situations and emergencies. • Glasgow Coma Scale.
	20.	<p><u>UROLOGY</u> <u>SEMIOLOGY OF UROLOGICAL CONDITIONS DIAGNOSTIC METHODS IN UROLOGY</u></p> <ul style="list-style-type: none"> • Etiology of urological diseases. Diagnostic methods in urology. Anomalies of the kidneys, ureters, and bladder. <p style="text-align: right;"><u>TUBERCULOSIS OF UROGENITAL TRACT.</u></p> <p><u>URINARY TRACT CALCULI</u></p> <ul style="list-style-type: none"> • Tuberculosis of urinary tract and genital organs. • Urinary tract calculi: renal lithiasis, ureterolithiasis, urolithiasis. Obstructive uropathy. • Diseases of the genital organs. Anomalies of male genital organs. • Acute scrotum. Epididymitis, orchitis. • Varicocele. Hydrocele and hematocele. • Ectopia, retention, testicular torsion.

		<ul style="list-style-type: none"> • Subfertility and infertility in men.
	21.	<p><u>UROLOGY</u></p> <p>TUMORS</p> <ul style="list-style-type: none"> • Tumors of the renal parenchyma. Tumors of the renal pelvis and ureter. Tumors of the urinary bladder. <p>PROSTATE</p> <ul style="list-style-type: none"> • Benign prostatic hyperplasia. • Prostate cancer.
	22.	<p><u>UROLOGY</u></p> <p>INFLAMMATORY PROCESSES OF THE URINARY TRACT</p> <ul style="list-style-type: none"> • Inflammatory processes in the urinary tract. • Urosepsis. • Non-neurogenic dysfunction of the lower urinary tract. <p>INJURIES OF THE UROGENITAL SYSTEM AND KIDNEY TRANSPLANTATION</p> <ul style="list-style-type: none"> • Kidney injuries. Open injuries. • Ureter injuries. • Bladder injuries. • Injuries of the urethra and penis, scrotum, testicles. <p>KIDNEY TRANSPLANTATION</p>
	23.	<p><u>ORTHOPEDICS</u></p> <ul style="list-style-type: none"> • Introduction to orthopedics. • Diagnosis of orthopedic diseases. • Principles and methods of treatment in orthopedics. <p>BONE AND JOINT INFECTIONS</p> <ul style="list-style-type: none"> • Osteomyelitis. Tuberculous osteomyelitis. Suppurative and tuberculous arthritis. <p>DEVELOPMENTAL DISEASES</p> <ul style="list-style-type: none"> • Developmental bone diseases. Osteogenesis imperfecta. Achondroplasia.

	24.	<p><u>ORTHOPEDICS</u></p> <p>OSTEOPOROSIS</p> <ul style="list-style-type: none"> • Osteoporosis: definition, pathophysiology, clinical presentation, diagnosis, and treatment • Tumors of the musculoskeletal system (primary and secondary) • Cartilage tumors <p>DISEASES OF THE SPINE AND DEVELOPMENTAL DISORDERS</p> <p>HIP DISEASES</p> <ul style="list-style-type: none"> • Congenital hip dysplasia, early detection and treatment • Congenital hip dislocation. Degenerative hip diseases <p>KNEE AND FOOT DISEASES</p> <ul style="list-style-type: none"> • Bursitis. Synovitis. Patellar dislocation. Patellar chondromalacia • Foot anomalies. Hallux valgus
	25.	<p><u>TRAUMATOLOGY</u></p> <ul style="list-style-type: none"> • Terminology, principles, and protocols in the treatment of injured persons. Immobilization. • Examination and diagnosis of upper extremity injuries. Bandages, transport and plaster immobilization of upper extremities. • Fractures of the proximal humerus. • Shoulder dislocations. • Elbow fractures. • Radius fractures at typical sites. • Hand injuries. <p>SPINE</p> <ul style="list-style-type: none"> • Examination and diagnosis of spine injuries. Transport immobilization of spine injuries. • Cervical spine injuries. • Thoracolumbar spine injuries. <p><u>PELVIS AND HIP</u></p> <ul style="list-style-type: none"> • Examination and diagnosis of pelvic and hip injuries. Transport immobilization. • Traumatic hip dislocation. <p><u>LOWER EXTREMITY</u></p> <ul style="list-style-type: none"> • Lower extremity injuries. Examination and diagnosis of lower extremity injuries. • Femoral fractures. • Knee injuries (fractures, meniscus, and ligament injuries). • Tibial fractures. • Ankle injuries. • Foot injuries.

	26.	<p>MODERN METHODS AND TREATMENT POSSIBILITIES IN ORTHOPEDICS</p> <ul style="list-style-type: none"> • Arthroscopies, replantations. • Pseudoarthrosis. Consequences of inadequate treatment in orthopedics. • Amputations and conditions for replantation. <p>CNS TUMORS</p> <ul style="list-style-type: none"> • Primary intracranial brain tumors, basic classification, clinical presentation, diagnosis, treatment principles. • Pituitary tumors. Orbital tumors. • Metastatic brain tumors, most common primary locations, clinical presentation, diagnosis, treatment principles. <p>CEREBROVASCULAR DISEASES</p> <ul style="list-style-type: none"> • Intracranial arterial aneurysms, types, etiology, clinical presentation, diagnosis, treatment principles. • Spontaneous subarachnoid hemorrhage, etiology, clinical presentation, diagnosis, treatment principles. • Arteriovenous malformations of cerebral blood vessels, clinical presentation, diagnosis, treatment principles. • Cerebrovascular stroke. • Carotid artery stenosis. Thrombosis of cerebral blood vessels.
	27.	<p>NEUROSURGERY SPINE AND SPINAL CORD</p> <ul style="list-style-type: none"> • spinal cord injuries, classification, etiology, clinical presentation, diagnosis, treatment principles. • spinal cord tumors, classification, clinical presentation, diagnosis, treatment principles. • cervical radiculopathy, etiology, clinical presentation, diagnosis, treatment principles. • lumbar disc herniation, etiology, clinical presentation, diagnosis, treatment principles. <p>CONGENITAL ANOMALIES OF THE CNS</p> <ul style="list-style-type: none"> • crano-cerebral dysraphism, classification, clinical presentation, diagnosis, treatment principles. • spino-medullary dysraphism, classification, clinical presentation, diagnosis, treatment principles. • congenital hydrocephalus, classification, etiology, clinical presentation, diagnosis, treatment principles. • craniosynostosis, classification, etiology, clinical presentation, diagnosis, treatment principles. • syndrome of increased intracranial pressure, etiology, clinical presentation, diagnosis, treatment principles. <p>PERIPHERAL NERVES</p> <ul style="list-style-type: none"> • peripheral nerve injuries, classification, clinical presentation, diagnosis, treatment principles. • compressive neuropathies, classification, clinical presentation, diagnosis, treatment principles. • peripheral nerve tumors, classification, clinical presentation, diagnosis, treatment principles. • rehabilitation of patients after neurosurgical diseases and injuries.
	28.	<p>PEDIATRIC SURGERY</p> <ul style="list-style-type: none"> • Introduction. History of pediatric surgery. • Specifics of physical examination and diagnostic procedures. Preoperative preparation and postoperative care. • Specifics of anesthesia and resuscitation. • Reconstructive surgery in children. Specifics of burn treatment in children. • Thoracic surgery. • Pleural empyema, pneumothorax. Bronchoceles. Congenital cystic lung diseases in children. Pulmonary sequestration. • Cysts and tumors of the mediastinum. • Congenital diaphragm anomalies. • Esophageal atresia, tracheoesophageal fistula. <p>Neonatal surgery: meconium ileus; necrotizing enterocolitis.</p> <p>Surgical oncology in children.</p> <ul style="list-style-type: none"> • Childhood tumors: neuroblastoma, neuroblastoma, liver tumors. • Germ cell tumors and teratomas. Rhabdomyosarcoma. • Traumatology of the musculoskeletal system. Characteristics of trauma in children. • Fractures typical for children. • Most common birth injuries.

	29.	<p><u>PEDIATRIC SURGERY</u></p> <p><u>Pediatric Urology</u></p> <ul style="list-style-type: none"> • Diagnosis of urological diseases. • Urotract anomalies. • Vesicoureteral reflux. • Testicular retention. Acute scrotum. <p><u>Pediatric Abdominal Surgery</u></p> <ul style="list-style-type: none"> • Abdominal wall anomalies. • Intestinal anomalies. • Hypertrophic pyloric stenosis. • Meckel's diverticulum. • Manifestations of the omphaloenteric duct on the navel. Anorectal anomalies. Biliary tract obstruction. • Pathology of the inguinal canal and external genitalia. <p><u>Emergency Conditions in Pediatric Surgery.</u></p> <p><u>Cardiac Surgery</u></p> <ul style="list-style-type: none"> • Congenital ASD and VSD. • Patent ductus arteriosus, coarctation of the aorta. • Tetralogy of Fallot, transposition of the great arteries. <p><u>Pediatric Orthopedics</u></p> <ul style="list-style-type: none"> • Developmental disorders of the hips and feet.
	30.	<p><u>CNS INFECTION, FUNCTIONAL NEUROSURGERY</u></p> <ul style="list-style-type: none"> • Meningitis. Traumatic meningitis. • Cavemous sinus thrombosis. Encephalitis. • Brain abscess. <p><u>SURGERY OF MASS CASUALTIES AND EMERGENCY SITUATIONS</u></p> <ul style="list-style-type: none"> • Specific conditions of surgical work in mass casualty situations and emergencies. • Unified surgical doctrine. • Care of the injured. Triage, evacuation, staged treatment of the wounded. Scope and extent of assistance at each stage. • Medical documentation. • Characteristics of mass injuries and types of injuries. • Mechanism of injury, classification, general principles of treatment. Infection prevention. • Specifics of infection in mass injury conditions. • Traumatic shock. • Resuscitation and anesthesia. Burns and frostbite. • Radiation injuries. Chemical injuries. Crush and blast syndrome.
		<p>PRACTICAL TRAINING – EXERCISES</p>

	1.	<ol style="list-style-type: none"> 1. Introductory Exercises: Anamnesis and Examination 2. Introduction to Sterilization Methods, Working with Disinfectants. Familiarization with the Operating Room and Operating Room Procedures (Demonstration Exercises with Case Presentations) 3. Surgical Infections (Clinical Examination with Case Presentations, Management of Surgical Wounds)
	2.	<ol style="list-style-type: none"> 4. Surgical Wound Management (Primary and Secondary Wound Treatment, Clinical Examination) 5. Bleeding and Hemostasis 6. Blood Transfusion and Blood Derivatives
	3.	<ol style="list-style-type: none"> 7. Diagnostic Procedures in Surgery (Radiological and Endoscopic Diagnostic Procedures) 8. Preoperative Preparation and Postoperative Treatment of Patients (Clinical Case Presentations, Basic Principles of Work in ICU)
	4.	<ol style="list-style-type: none"> 10. Water and Electrolyte Balance. Calculating Daily Requirements for Water, Electrolytes, and Nutrients (Carbohydrates, Proteins, Fats) in Surgical Patients. Parenteral and Enteral Nutrition, Venous Access. 11. Cardiopulmonary Resuscitation 12. Sepsis, Basic Principles of Treatment and Diagnosis (Clinical Case Presentations)
	5.	<ol style="list-style-type: none"> 13. Shock – Classification, Clinical Presentation, Therapy (Clinical Case Presentations) 14. Clinical Evaluation of Patients with Typical Clinical Presentation of Dysphagia. Esophageal Cancer (Clinical Case Presentations) 15. Clinical Application of Diagnostic Tests and Radiological Methods in the Diagnosis of Benign Diseases of the Distal Esophagus (Hiatal Hernias, Gastroesophageal Reflux Disease, and Achalasia). Seminar Paper

	6.	<p>16. Extracorporeal circulation, application of artificial heart.</p> <p>17. Clinical examination of patients with congenital and acquired heart defects, interpretation of echocardiography, and conclusions for cardiothoracic interventions.</p> <p>Invasive monitoring in cardiothoracic interventions. Measurement and interpretation of central venous pressure. Application of temporary pacemaker.</p>
	7.	<p>19. Basics of clinical examination of vascular patients. Specifics of anamnesis and physical examination findings. Methods of temporary hemostasis: digital compression, dressing, wound packing, Esmarch's bandage (clinical presentation of patients).</p> <p>20. Anamnesis and clinical examination of patients with acute and chronic lower extremity ischemia, peripheral arterial aneurysm (clinical presentation of cases).</p> <p>21. Anamnesis and clinical examination of patients with thrombophlebitis and deep vein thrombosis. Basics of venous ulcer treatment. Application of elastic bandages. Treatment of lymphedema, measures and procedures. Seminar paper.</p>
	8.	<p>22. Examination of patients with abdominal aortic aneurysm, initial diagnostics, and prognosis (clinical presentation of cases).</p> <p>23. The importance of clinical examination in establishing a diagnosis, as well as clinically detecting suspected carotid artery stenosis (pulses, murmurs, thrill).</p> <p>24. Anamnesis and clinical examination of patients with thyroid and parathyroid gland disorders (clinical presentation of cases). Seminar paper.</p>
	9.	<p>25. Clinical examination of the inguinal canal. The importance of clinical examination in diagnosing inguinal hernias and anterior abdominal wall hernias (clinical presentation of cases). Manual reduction of hernias – taxis.</p> <p>26. Clinical assessment of a patient with pneumoperitoneum. Recognition and differentiation of the leading signs of peritoneal irritation. Clinical presentation of the complete diagnostic and therapeutic procedure.</p> <p>27. Presentation of the clinical picture and diagnosis of patients with small and large bowel ileus. Abdominal X-rays, placement of a nasogastric tube, placement of a urinary catheter, and other therapeutic procedures for these patients.</p>
	10.	<p>28. Clinical presentation of a typical uncomplicated gastric and duodenal ulcer - case presentations (seminar paper).</p> <p>Clinical presentation of patients with malignant and benign tumors of the stomach and duodenum. Clinical examination, anamnesis, diagnostic methods, treatment modalities (seminar paper).</p> <p>30. Foreign bodies in the stomach and duodenum. Specifics of injuries to the abdominal wall and abdominal organs (case presentations).</p>

	11.	<p>31. Clinical tests for provoking pain in acute appendicitis and clinical tests for provoking pain in Meckel's diverticulum – practical presentation.</p> <p>32. Clinical assessment of patients with Crohn's disease and small bowel tumors.</p> <p>33. Clinical presentation of patients with signs of mesenteric ischemia of the small intestine, injury, and fistulas. Clinical presentation of patients with ileostomy – ileostomy care.</p>
	12.	<p>34. Clinical presentation of patients for surgical treatment with malignant tumors of the colon and rectum. Overview of basic diagnostic procedures. Demonstration of colonoscopy technique, identification of typical pathological changes, and biopsy sampling. Seminar paper.</p> <p>35. Importance of different diagnostic methods in intestinal obstruction and clinical assessment.</p> <p>36. Digital rectal examination. Examination of patients with hemorrhoidal disease, perianal fistula, and anal fissure.</p>
	13.	<p>37. Clinical assessment of patients with liver abscess or cyst (echinococcal and other liver cysts). Practicing liver palpation. (Seminar paper)</p> <p>38. Analysis of diagnostic methods in hepatobiliary surgery – practical application. Assessment of patients with esophageal varices (balloon tamponade). (Seminar paper)</p> <p>39. Clinical assessment of patients with jaundice syndrome (case presentations). Diagnostic and therapeutic procedures. Clinical assessment of patients with primary and secondary liver tumors (case presentations).</p>
	14.	<p>40. Clinical assessment of patients with acute and chronic inflammation of the gallbladder and choledocholithiasis (case presentations).</p> <p>41. Clinical assessment of patients with acute pancreatitis. Clinical presentation of patients with complicated forms of pancreatitis.</p> <p>42. Clinical presentation of patients with solid pancreatic tumors and pancreatic pseudocysts. Palpation of the spleen, assessing size and consistency. Interpretation of laboratory findings related to splenomegaly. (Seminar paper)</p>
	15.	<p>43. Clinical presentation of patients with primary and secondary tumors of the retroperitoneum, injuries to vascular structures in the retroperitoneal space. Diagnostic and therapeutic modalities for the treatment of retroperitoneal tumors and injuries.</p> <p>44. Anamnesis and clinical examination of patients with adrenal gland disorders, endocrine pancreas disorders, and MEN syndrome (case presentations).</p> <p>45. Fundamentals of clinical examination and specific aspects of anamnesis in patients with breast cancer. Selection of diagnostic procedures (mammography, ultrasound, biopsy). Principles of TNM classification of disease stages. Potential for surgery and other therapeutic modalities in breast cancer treatment. Importance of primary control and breast cancer screening. (Seminar paper)</p>

	16.	<p>46. Pathophysiology of burn shock. Burns in pediatric age. Determination of burn depth (degree). Calculation of burn surface area (Rule of nines and Rule of palm). Preparation for transport. Calculation of required fluid replacement and distribution of administration.</p> <p>47. Skin grafts. Flaps. Soft tissue reconstructions. Decubitus ulcers. (Case presentations)</p> <p>48. Melanoma and skin tumors. Diagnostic and therapeutic algorithms. Application of dermoscopy in the diagnosis of skin tumors. (Case presentations)</p>
	17.	<p>49. Anamnesis, physical examination of patients with chest diseases. Interpretation of chest radiography and CT findings. Familiarization with preoperative assessment and postoperative recovery and treatment of thoracic surgical patients.</p> <p>50. Clinical presentation of patients with chest wall and lung injuries. Diagnostic and therapeutic algorithms.</p> <p>51. Clinical presentation of patients with malignant and benign tumors of the mediastinum. Diagnostic and therapeutic algorithms. (Seminar paper)</p>
	18.	<p>52. Clinical presentation of patients with pleural empyema, pleural effusion, and lung abscess. Diagnostic and therapeutic algorithms. (Seminar paper)</p> <p>53. Thoracotomy and VATS approaches in thoracic surgery.</p> <p>54. Clinical presentation of patients with malignant and benign lung tumors. Diagnostic and therapeutic algorithms. The importance of bronchoscopy and CT/PET in the diagnosis of lung tumors.</p>
	19.	<p>55. Clinical presentation of patients with pneumothorax. Procedure for thoracic drainage.</p> <p>56. Cranio-cerebral injuries. Cerebrovascular diseases. (Clinical case presentations)</p> <p>57. Clinical presentation of cases with head contusion and concussion. Diagnostic and therapeutic algorithm.</p>
	20.	<p>58. Urological history taking and examination. Digital rectal examination. Familiarization with urological diagnostic procedures: ultrasound, transrectal ultrasound, prostate biopsy, urethrocystoscopy, urodynamics.</p> <p>59. Placement of a urinary catheter. Placement of a cystostomy catheter. Care of a patient with a urinary catheter and percutaneous nephrostomy catheter. Examination of a patient with a history of urinary infection.</p> <p>60. Examination of male external genitalia: hydrocele, varicocele, phimosis, paraphimosis, hypo/epispadias, short frenulum, cryptorchidism, testicular retention... Interpretation of laboratory findings significant for urology (urine, urea, creatinine, CBC, PSA, urine cytology, sperm analysis, urethral swabs).</p>

	21.	<p>61. Clinical presentation of a patient with a history of urinary calculi. Clinical presentation of patients with hydronephrosis. Diagnostic and therapeutic algorithm.</p> <p>62. Clinical presentation of patients with prostate diseases. DRE, ultrasound, and other diagnostic methods – application in clinical practice.</p> <p>63. Clinical presentation of patients with tumors of the kidney, renal pelvis, testicles, and bladder.</p>
	22.	<p>64. Clinical presentation of patients with urinary infection, cystitis, and pyelonephritis. Clinical presentation of patients with urosepsis.</p> <p>65. Clinical presentation of patients with injuries to the urogenital tract and external genitalia.</p> <p>66. Clinical presentation of patients with a transplanted kidney. Preparation of patients for transplantation. Clinical presentation of patients with urgent urological conditions. (Seminar paper)</p>
	23.	<p>67. Diagnosis of orthopedic diseases. Principles and methods of treatment in orthopedics. Osteomyelitis. Tuberculous osteomyelitis. Suppurative and tuberculous arthritis. (Clinical case presentations)</p> <p>68. Developmental bone diseases. Osteogenesis imperfecta. Achondroplasia. Juvenile epiphyseolysis. Congenital hip dysplasia, early detection and treatment. Congenital hip dislocation. Ultrasound diagnosis of developmental hip disorder. (Seminar paper)</p> <p>69. Osteoporosis: clinical presentation, diagnosis, and treatment. Primary and secondary bone and cartilage tumors, diagnosis, and treatment. (Clinical case presentations)</p>
	24.	<p>70. Degenerative hip diseases - coxarthrosis. Aseptic necrosis of the hip. (Clinical case presentations)</p> <p>71. Gonarthrosis, bursitis, synovitis, patellar dislocation, patellar chondromalacia. Foot anomalies, pes planovalgus, equinovarus foot, hallux valgus. (Clinical case presentations)</p> <p>72. Examination and diagnosis of upper extremity injuries. Bandages, transport, and plaster immobilization of the upper extremities. Fractures of the clavicle and scapula, fractures of the proximal humerus. Shoulder dislocations, acromioclavicular and sternoclavicular joint dislocations, humerus fractures.</p>
	25.	<p>73. Fractures in the elbow region (supracondylar fractures, fractures of the proximal radius and ulna, elbow dislocations, forearm fractures). Fractures of the distal radius and ulna, fractures of the radius at typical locations, fractures of the carpal bones, fractures of the metacarpal bones and phalanges. Hand injuries.</p> <p>74. Examination and diagnosis of pelvic and hip injuries. Lower extremity injuries. Examination and diagnosis of lower extremity injuries. Transport immobilization. Pelvic fractures. Traumatic hip dislocation. Hip fractures. Femoral fractures.</p> <p>75. Knee injuries (fractures, dislocations, meniscus and ligament injuries). Tibial fractures. Injuries in the ankle region. Tarsal bone fractures. Metatarsal bone and phalange fractures. Foot injuries.</p>

	26.	<p>76. Examination and diagnosis of spinal injuries. Transport immobilization of spinal injuries. Cervical spine injuries. Thoracolumbar spine injuries. (Seminar paper)</p> <p>77. Clinical presentation of patients with CNS tumors. Diagnostic and therapeutic algorithm.</p> <p>78. Clinical presentation of patients with intracranial arterial aneurysms and stenosis of the carotid and vertebral arteries.</p>		
	27.	<p>79. Clinical presentation of patients with spine and spinal cord injuries. Clinical presentation of patients with cervical and lumbar radiculopathy.</p> <p>80. Pain surgery, neurophysiological and ablative procedures. (Clinical case presentations)</p> <p>81. Injuries and diseases of peripheral nerves. Developmental disorders and diseases of the spine. (Clinical case presentations) (Seminar paper)</p>		
	28.	<p>82. History taking and physical examination of a child. Emergency conditions in pediatric surgery – diagnosis and management measures (emergency surgical clinic). Thoracic drainage. Wound dressing, burn management, suture removal. (Clinical case presentations)</p> <p>83. Neonatal surgery – diagnosis (ultrasound, X-ray, CT, MRI) – interpretation of findings. Examination of newborns. Congenital anomalies – patient examination, history taking from the mother, determination of diagnostic methods and therapeutic procedures. (Seminar paper)</p> <p>84. Injuries and fractures of extremities specific to pediatric age. (Clinical case presentations) (Seminar paper)</p>		
		<p>85. Emergency conditions in abdominal surgery (appendicitis, intussusception, ileus, etc.). (Clinical case presentations) (Seminar paper)</p> <p>86. Urological diseases in childhood. (Clinical case presentations)</p> <p>87. Developmental disorders of the hips and feet in childhood. (Clinical case presentations) (Seminar paper)</p>		
		<p>88. Infections of the central nervous system. (Clinical case presentations). Interventional radiological procedures in neurosurgery.</p> <p>89. Management of injured patients in mass casualty incidents. Surgical treatment of contaminated wounds. Diagnostic and therapeutic algorithm. Characteristics of mass injuries and types of injuries.</p> <p>90. Traumatic shock. Radiation and chemical injuries. (Clinical case presentations)</p>		
Compulsory literature				
Author/s		Publication title, publisher	Year	Pages
Aleksandar Simić, Danica Grujičić, Duško Spasovski		Surgery with anesthesiology	2023	

Živan Maksimović		Surgery for medical students	2018	
Additional literature				
Author/s		Publication title, publisher	Year	Pages
Samir Delibegović, Nenad Lalović		Surgery	2020.	
Student responsibilities, types of student assessment and grading	Grading policy		Points	Percentage
	Colloquiums		15	15%
	Seminars		10	6
	Lectures		5	1
	Tests		20	13
	Practical exams		10	6
	Oral exams		40	17
	Total number of points		100	51
Certification date		June 17th 2024		

* користећи опцију инсерт мод унијети онолико редова колико је потребно